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UNIVERSITY OF TORONTO



REPORT OF THE DEAN
OF THE
FACULTY OF MEDICINE

SESSION 1945-1946

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FACULTY OF MEDICINE

Toronto, June 30, 1946

*To the Graduates in Medicine of
the University of Toronto:*

This date brings to a close a period in the history of the Faculty in which one of the heads of departments has acted as chief administrative officer. He will now be replaced by a full-time dean whose major interest will be the study and solution of the problems of general medical education. This forward move has been made necessary by the growth of the Faculty and by the changes which are taking place in medical education throughout the world. It will enable us to maintain the position we now so proudly occupy.

In thanking the graduates for the kindly support they have always given to him, the retiring Dean bespeaks their continued goodwill towards the Faculty and its presiding officer. With this assured, the school may look to the future with the greatest confidence.

W. E. GALLIE,
Dean.

REPORT OF THE DEAN OF THE FACULTY OF MEDICINE

The annual report of the Dean consists largely of an account of the process of reconversion from a war-time to a peace-time basis. This process is not simple as it comes suddenly and it involves not only the great increase in the number of students but also important changes in the staff. I am glad to be able to report that, in spite of these difficulties, the standard of the course has been maintained and the new premedical and medical courses—described in last year's report—are successfully under way.

An important change in administration has been the adoption of the principle of a full-time dean and the appointment of Dr. J. A. MacFarlane as the first incumbent of that office. This Faculty has grown so large and the business of managing it has become so complicated and onerous that it is no longer possible for the head of one of the departments to administer its general business and, at the same time, give the personal leadership required by his own department. The University is exceedingly fortunate in securing as its first full-time dean a gentleman of proven administrative ability and of broad experience in the problems of practice and of medical education.

Coincident with the appointment of Dr. MacFarlane as Dean of the Faculty comes the retirement of the present Dean and of Dr. E. S. Ryerson, the Assistant Dean and Secretary.

Doctor Ryerson joined the Faculty in 1903 as a demonstrator of Anatomy. Since then he has served continuously except when on leave of absence during the war of 1914-18. As a teacher of Anatomy, Pathology, and Surgery he is known to generations of our graduates. In 1908 he was appointed Assistant Secretary of the Faculty. In 1918 he became Secretary and in 1932, Assistant Dean and Secretary. In these administrative offices he has had a part in the whole modern history of the Faculty and has been responsible for much of its progress. Several thousand students have been advised and guided by him and will remember him with gratitude as a counsellor and friend. He now retires to devote his whole attention to the direction of the School of Physical and Health Education of which he was the founder.

The programme described in last year's report—whereby 150 ex-service men were admitted to a first year of the old type and 150 others were admitted to the new first premedical year—worked well. The ex-service men's year did surprisingly well in their laboratory work and examinations and demonstrated that the years of absence from systematic study have not lessened their ability as students. The first premedical year was a success and the Board of Examiners, composed of representatives of each of the Arts departments involved, reported favourably on the course. Aside from the scientific subjects, in which the average was naturally high, the Departments of Philosophy, Botany, English, and History were well pleased with the results.

To meet the great demand for admission to the Faculty of Medicine from men demobilized from the services, the University, as a post-war measure, raised the limit of admissions to the first premedical year to 200. It is beyond the capacity of the University to handle this number satisfactorily, particularly in the clinical years, but in the face of the present emergency there is no alternative. By restricting the numbers of students entering directly from the high schools and giving preference to military service, as well as to aptitude, it is hoped to make a satisfactory selection and ultimately return to an average attendance of about 100 in each year.

The anticipated demand for refresher courses for officers demobilizing from the medical services failed to materialize. This Faculty—in conjunction with the

other Canadian medical schools—agreed to provide four two-month courses for groups of 60 or less. The first course was conducted in January and February for a class of 24 and after that no further courses were offered owing to the dearth of applicants. The course as given was appreciated by the students and was commented on by them favourably but the competition for locations for practice became so keen that few felt justified in taking two months off. All other medical schools reported similarly so that the plan for further refresher courses for officers has been dropped.

As a substitute for these courses for officers the University now offers a refresher course for general practitioners, of four weeks' duration, to begin in October, 1946. Instruction will be provided in Medicine, Surgery, Obstetrics, Gynaecology, and Paediatrics. This course will be given provided at least 25 applicants register. Not more than 60 applications can be accepted.

Recognizing the increasing demand for advanced postgraduate instruction to prepare candidates for the examinations for fellowship in the Royal Colleges of Physicians and Surgeons—and for certification as specialists—the University is offering eight-week advanced refresher courses, beginning in August, 1946. These courses will be given in Medicine, Surgery, Obstetrics and Gynaecology, and the specialties. They will include instruction or opportunity for study in Anatomy, Physiology, and Pathology. The total registration will be limited to 50 graduates. Not more than 20 will be enrolled in any one course, with a minimum of 7.

The reports of the various departments are of special interest this year, indicating the return from war-time to peace-time conditions.

The Department of Anatomy calls attention to the increase in the number of students studying Gross Anatomy. The number has risen from 422 to 872 in the last decade, only one-third of which number are medical students. This is a heavy responsibility for the Department. Interesting researches on cancer and on the transplantation of tissues have continued.

The Department of Art as Applied to Medicine reports the successful launching of its diploma course. It is working, however, under the handicap of inadequate studio accommodation which should be remedied at the first opportunity. The Director, Miss Wishart, in addition to recording the rapid increase in the service rendered by the Department in medical illustration, outlines further ways in which the Department may be of service to the University.

The Department of Biochemistry is now able to disclose the results of some of the researches on chemical warfare to which reference was made in former reports as on the secret list. These results are referred to in Professor Wasteneys' report.

The Department of Hygiene and Preventive Medicine reports steadily increasing interest in the courses for the diploma in Public Health, Industrial Hygiene, Dental Public Health, and Veterinary Public Health. Forty-one students were registered for 1945-6, the largest class so far enrolled. In addition, owing to the demand from officers demobilized from the medical services, a summer course, commencing in April, has been established, accounting for an additional 31 students. These extra responsibilities, added to the regular undergraduate work, place heavy strain on the Department.

The Banting and Best Department of Medical Research continues active research work.

The Department of Medicine reports the return of a large group of young officers who have given distinguished service overseas and who have now rejoined the Department. Most of them came back as Lieutenant Colonels. They are all engaged in research work.

The Department of Obstetrics and Gynaecology draws attention to the improvement in the curriculum of the final year of the new four-year course whereby the term of thirty-six weeks is divided into four parts, one of which is devoted to instruction in Obstetrics and Gynaecology and Paediatrics. One quarter of the class will thus receive intensive and whole-time instruction in these subjects throughout a term of nine weeks.

The Department of Ophthalmology reports the successful launching of its programme of postgraduate training for ophthalmologists. This consists of a two years' internship in Ophthalmology at the Toronto General Hospital and the Hospital for Sick Children. It includes adequate instruction in the ancillary basic sciences, Physics, Anatomy, Physiology, and Pathology. Professor W. W. Wright, who has designed the course, hopes to see it expanded to include St. Michael's and the Western Hospitals so that adequate provision shall be made for the training of specialists.

The Department of Paediatrics continues its intensive clinical and laboratory researches. This department has been highly successful in working in collaboration with other departments, particularly Physiology, Pathological Chemistry, Hygiene and Preventive Medicine, Biology and also with other Faculties, such as Dentistry, The College of Education and the Ontario Agricultural College. The phenomenal success of the building campaign of the Hospital for Sick Children and the decision of its Board of Trustees to build a new hospital on University Avenue gives promise of further advancement of the department and of the completion of a great Medical centre in close association with the University.

The Department of Pathological Chemistry reports the return of Dr. A. G. Gornall who has been on leave of absence to the Navy for 4 years. He returns with a wide experience of the clinical applications of Pathological Chemistry which it is hoped will ultimately prove of practical value to the department.

In the Department of Pathology and Bacteriology, Professor Boyd has prepared a new edition of his text-book *Surgical Pathology*. This well-known book has already been used in a number of European and South American countries and the fifth edition has now been translated into Portuguese, as has also his *Text-Book of Pathology*. In the division of Bacteriology, Dr. P. H. Greey has continued important researches on penicillin and streptomycin, and in Neuro-pathology, Dr. Linell completed, with Dr. J. E. Bateman, his studies on plasma suture in peripheral nerve injury. The Department has this year undertaken a fortnightly clinical pathological conference with the Department of Surgery, which is very popular.

In September, 1945, Professor J. K. W. Ferguson was appointed Head of the Department of Pharmacy and Pharmacology in succession to Professor V. E. Henderson. Professor Ferguson is a graduate of this school, of 1932. In 1933-4, he held a medical fellowship in the National Research Council of Washington, at Cambridge University. He was Lecturer and Assistant Professor in Physiology, University of Western Ontario, in 1934-5 and 1935-6; then Assistant Professor of Physiology at Ohio State University, 1936-8. In 1938, he was brought home on the recommendation of Professor Henderson, as Assistant Professor, and was holding this appointment, although on leave of absence to the Air Force, at the time of Professor Henderson's death.

The Department of Physiology continues to be very active in research and has been much strengthened by the return of Dr. Jacob Markowitz and Dr. E. T. Waters from the medical services. While the study of insulin and of heparin constitutes a large part of the researches, entirely new investigations on the function of the hepatic artery have been undertaken by Doctors Waters and Markowitz and several new departures have been made in Biophysics under the supervision of Dr. D. Y. Solandt. The Head of the Department and Professor

N. B. Taylor have brought out a new edition of the well-known text-book "Best and Taylor."

The Department of Psychiatry reports progress in a co-operative research in electroencephalography with the Department of Physiology.

The Department of Surgery reports the re-establishment of its postgraduate course for the training of surgeons, with a registration of 19 for the degree of Master of Surgery. These graduate students are all established in a three-year course of training as senior interns in Surgery in the University hospitals. The plan of training is being extended this year to the Hamilton General Hospital. The course includes instruction in Anatomy, Physiology, Pathology, and Surgery and is designed to qualify the students for the practice of general surgery and to prepare them for the examinations for fellowship in one of the Royal Colleges. Provision is also made for a continuation of training for graduates of this course who wish to qualify in one of the surgical specialties. The details are outlined in the departmental reports.

The Department of Therapeutics continues its association with the Department of Medicine in investigation of problems in anaemia, endocrinology, and in the use of new drugs.

RETIREMENTS, RESIGNATIONS, AND NEW APPOINTMENTS

With the cessation of the war many changes in the staff have occurred.

Professor W. A. Scott, Head of the Department of Obstetrics and Gynaecology, completed his term of service as Professor and Chief of the Service at the Toronto General Hospital on June 30 and will devote himself henceforth to private practice. He will be succeeded in both appointments by Dr. H. B. Van Wyck who will take up his duties on a full-time basis with limited privileges in private consulting work.

Dr. Scott has been associated with the Department since its organization in 1914 under Professor B. P. Watson and he has occupied the chair since 1935. Under his leadership the Department has grown and has become a first-class teaching unit, developed particularly in the direction of giving a practical training in Obstetrics to our students and interns. He and Dr. Van Wyck have prepared a text-book, now in process of publication, which is sure to add to the prestige of the Department.

Dr. Van Wyck has been a member of the Department since 1921 and is well qualified to carry on its traditions. He is a man of broad culture and vast professional experience and is sure to provide the leadership that a great Department requires.

Professor W. L. Holman, Head of the division of Bacteriology in the Department of Pathology also retires this year. He will be succeeded by Dr. Phillip H. Greey.

Professor Holman came to Toronto in 1924 with Professor Oskar Klotz. He has had an important share in raising the Department of Pathology to the high position it now occupies.

Dr. Greey is a graduate of this Faculty of the year 1928 and has been a member of the Department since 1929. He has been and still will be Bacteriologist to the Toronto General Hospital. With the passage of years his interest in research, particularly on antibiotics, has steadily increased and it may be expected that under his guidance the Department will not only continue as a first-class teaching unit but will become one of the most fruitful research departments in the University.

Professor W. W. Wright—Head of the Department of Ophthalmology and Ophthalmologist-in-Chief to the Toronto General Hospital—has also retired and will be replaced by Dr. A. J. Elliot.

Dr. Wright has occupied the chair for only a few years but during that time has made a most important contribution in organizing and establishing the school for ophthalmologists, referred to elsewhere in this report.

Dr. Elliot is an ophthalmologist of broad training and experience who has achieved distinction as consultant to the Air Force. He now assumes the posts of Professor and Head of the Department at the General Hospital with sufficient salary to enable him to devote a large part of his time to academic duties. Under his leadership the school for ophthalmologists—founded by Dr. Wright—will grow and become an important part in our educational programme.

In the Department of Surgery, the list of retirements is very large, containing the names of seven senior men. Dr. T. A. J. Duff retires as Assistant Professor and Surgeon-in-Chief at the Toronto Western Hospital and is succeeded by Dr. Robert C. Laird. Dr. N. S. Shenstone relinquishes his appointment as Senior Surgeon at the General Hospital and Assistant Professor, to be succeeded by his pupil, Dr. R. M. Janes. Dr. Robin Pearse, Head of the division of Urology, is succeeded by Dr. James C. McClelland. Dr. J. A. MacFarlane leaves the Department of Surgery to take up the duties of Dean of the Faculty. Dr. C. B. Parker retires from the Department in order to handle the duties of Assistant Superintendent of the General Hospital. Dr. R. H. Thomas and Dr. R. J. A. McComb also retire to private practice. More extensive reference to these distinguished gentlemen is made in the departmental report.

In Obstetrics and Gynaecology, Professor R. W. Wesley is retiring as Assistant Professor and as Director of the Service at the Toronto Western Hospital. He will be succeeded by Dr. Lionel Armstrong.

In Paediatrics, Dr. Alan W. Canfield, Dr. George E. Smith, and Dr. A. P. Hart are relinquishing their hospital and University appointments and will devote themselves to private practice.

The Department of Medicine reports the retirement or resignation of Drs. W. E. Ogden, R. A. Cleghorn, A. E. Parks, D. J. Prendergast, and E. E. Cleaver; in Pathological Chemistry, Dr. D. H. Boddington, and in Psychiatry, Drs. K. G. Gray, J. D. M. Griffin, B. H. McNeel, and C. G. Stogdill have also retired.

HONOURS AND IMPORTANT APPOINTMENTS WON BY FORMER AND PRESENT MEMBERS OF THE STAFF

Brigadier J. A. MacFarlane, O.B.E., has been appointed Director of Surgery at Christie Street Hospital and Consultant in Surgery to the Department of Veterans' Affairs. He will hold these appointments in addition to his appointment of Dean of the Faculty.

Wing Commander R. F. Farquharson has been appointed Director of Medicine at Christie Street Hospital. He continues as Professor of Therapeutics and Assistant Professor of Medicine at the University.

Colonel Omond Solandt, a former member of the staff in Physiology, has been appointed Director-General of a new research branch of the Department of Defence. This officer achieved great distinction in scientific research during the war where he ultimately became Director of the British War Office research group. He was awarded the O.B.E. in the June Birthday Honours.

Captain Jacob Markowitz, R.A.M.C., captured by the Japanese at Singapore, after many adventures and many harrowing experiences survived his imprisonment and has returned to the Department of Physiology. He was awarded the O.B.E. in the June Birthday Honours.

Dr. G. E. Hall, a former member of the Department of Medical Research and, at present, Dean of the Medical Faculty in the University of Western Ontario, has been appointed to succeed Dr. W. Sherwood Fox as President of the University.

Dr. Paul B. Hamilton, formerly in the Department of Biochemistry, has been appointed Chief Biochemist at the Du Pont Institute in Wilmington, Delaware.

Professor C. H. Best has been signally honoured by the award of Docteur (*honoris causa*) in the University of Paris and on June 24, 1946, the honorary degree of D.Sc. was conferred on him by the University of Cambridge.

Surgeon Commander W. Keith Welsh, of the Department of Surgery and Group Captain Frederick F. Tisdall have been awarded the O.B.E. in recognition of their outstanding work in the services.

In the Department of Medicine, Lieutenant Colonels J. A. Dauphinee and R. B. Kerr were appointed Officers of the Order of the British Empire and Wing Commander R. F. Farquharson was awarded the M.B.E. Lieutenant Colonel W. A. Oille and Major K. J. R. Wightman were mentioned in despatches.

Dr. R. F. Farquharson was elected President of the Royal College of Physicians and Surgeons of Canada.

Dr. J. W. Magladery has been appointed Assistant Professor of Medicine in Johns Hopkins University.

On May 7, 1946, the degree of Doctor of Medicine (*honoris causa*) was conferred on Professor William Boyd by the University of Oslo.

Dr. R. A. Cleghorn has accepted an appointment in the Department of Psychiatry at McGill University and will take up his duties on September 1, 1946.

The Mickle Fellowship for 1946 was awarded to Dr. Oswald Theodore Avery, A.B., Sc.D., M.D., LL.D., Member Emeritus of the Rockefeller Institute for Medical Research. Dr. Avery is a Canadian by birth, who achieved great distinction for his original work in immuno chemistry.

Convocation was held on February 22nd and was attended by an enormous crowd of friends of the graduating class. Brigadier J. A. MacFarlane was the speaker.

NEW FELLOWSHIPS, SCHOLARSHIPS, AND BURSARIES

The Percy Hermant Fellowships in Ophthalmology, of which there may be two or more, of the combined value of \$3,500 per annum, have been established in the Faculty. These fellowships are the gift of Mr. Percy Hermant and are to be offered to graduates in Medicine who undertake postgraduate study or the promotion of research in the field of Ophthalmology. The annual value of any fellowship shall be determined upon the previous training and accomplishment of the applicant. (These fellowships will be of great value to the Department in their new programme of postgraduate training of specialists.)

The William Goldie Prize of the value of \$125, is awarded to a graduate in Medicine of sufficient merit who holds an appointment on the staff of the Department of Medicine of not more than ten years' standing and who has made a contribution of notable merit to the advancement of sound knowledge in Internal Medicine. In the event that no award of the prize is made in any session two awards may be made in a subsequent session.

The William Goldie Fund for Clinical Research. The President may also, from time to time, on the recommendation of the Head of the Department of Medicine, authorize the payment from the Fund of travelling expenses, not exceeding \$100 in any year, to assist a junior member or junior members of the Department of Medicine, (a) to attend medical meetings in Canada, the United States of America, or elsewhere, either to present papers or to have the opportunity of meeting persons engaged in the investigation of similar problems, or (b) to visit hospitals or university laboratories, and to obtain first-hand information on the investigation of problems of special interest to the Department of Medicine. The President may also, from time to time, on the recommendation

of the Head of the Department of Medicine, authorize the payment from the Fund of an amount not exceeding \$500 either to supplement any fellowship in clinical research held by a fellow in the Department of Medicine or for any other purpose which may be considered as aiding the advancement of clinical research.

The Arch Hutchison Fellowship. A graduate fellowship of the value of the annual income of \$25,000, the gift of an anonymous donor, has been established as a memorial to Archibald Hutchison. This fellowship is to be awarded annually to a graduate in Medicine of this or another approved university, for postgraduate study and for the promotion of research in Internal Medicine. The award will be made by the Council of the Faculty of Medicine on the recommendation of the Head of the Department of Medicine. If the annual income from this fund shall appear to be inadequate, the award shall not be made annually, but every two or three years or such number as the Council of the Faculty, on the recommendation of the Head of the Department of Medicine, may determine. In the event of no award being made in any year, two awards may be made in any subsequent year.

The Frances Esther Hutchison Fellowship. A graduate fellowship of the value of the annual income of \$25,000, the gift of an anonymous donor, has been established as a memorial to Frances Esther Dyson Hutchison. This fellowship is to be awarded annually to a graduate in Medicine of this or another approved university, for postgraduate study and for the promotion of research in Internal Medicine, by the Council of the Faculty of Medicine on the recommendation of the Head of the Department of Medicine. If the annual income from this fund shall appear to be inadequate, the award shall not be made annually but every two or three years or such number as the Council of the Faculty, on the recommendation of the Head of the Department of Medicine, may determine. In the event of no award being made in any year, two awards may be made in any subsequent year.

The Alec Garalick Scholarship, of the value of \$100, the gift of the Sigma Alpha Mu Scholarship Fund, is to be awarded to the student ranking first in honours at the final examinations in the premedical course preceding admission to the first medical year.

The Mr. and Mrs. J. T. Band Bursaries, from the sum of \$500, given to the University by Mr. F. K. Morrow to provide five bursaries of \$100. Each bursary is to be awarded to a needy ex-service student registered in the Faculties of Medicine, Dentistry, Applied Science, Forestry, or the School of Nursing.

The G. Roy Sproat and Katherine Sproat Bursary Fund of \$500 is to assist any student or students in the Faculty of Medicine who has served overseas during the Second Great War. Five bursaries of \$100 each will be made from this Fund.

Landseair War Service Club Memorial Bursaries in the amount of \$625 are to provide assistance for two ex-service students after they have reached the first medical or a higher year and after their rehabilitation benefit has expired.

The R.C.A.M.C. Women's Auxiliary Bursary of the value of \$100, is to be awarded annually to an ex-service student, man or woman, or to the child of ex-service personnel of World War I or World War II, who is enrolled in the first medical or a later year in the Faculty of Medicine and is in financial need.

The Jessie J. Hills Bequest of \$500 for medical research on cancer.

The Thomas Foster Bequest for Cancer Research in the Department of Medical Research. (This large sum will enable this Faculty to undertake much more extensive studies in the problem of cancer.)

The presentation of this report brings to a close a decade in the history of the Faculty of Medicine in which the retiring Dean has had the honour of being the presiding officer. During that time many important changes have occurred, some most regrettable and some which must be viewed as progress. The loss of Professors FitzGerald, Klotz, Henderson, Hendry, and Sir Frederick Banting was a blow which shook our organization sadly. On the other hand the period has been one of steady progress, particularly in the clinical departments, which have now overtaken the scientific departments in their ability to train their own men. It is a matter of great pride to the Faculty to see our young men moving up to professorial chairs here and in other universities as well as to prominence in practice throughout the land. The six years of war provided a wonderful opportunity for these young men to serve their country and to enhance the glory of their University.

The chief acts of the Faculty during these ten years were: first, the acceleration of the course for the purpose of increasing the number of graduates available for the services; second, the planning and ultimate putting into operation of the new course, consisting of two premedical Arts years and four longer years in Medicine; and third, the organization of our present plans for postgraduate training. These called for much committee work and many general meetings of the Council.

The success of these efforts was largely due to the chairmen of the committees. Dr. Ryerson has been a tower of strength in the detail work of all Faculty activities and particularly in the organization of the accelerated course for which he was largely responsible, both here and in the other Canadian medical schools. Professor Duncan Graham, as Chairman of the Committee of Curriculum and Examinations, has been responsible for most of the major changes in the medical course and particularly for the new course, which has just come into operation. Professor Andrew Hunter, as Chairman of the Committee of Applications and Memorials, handled an enormous number of knotty problems with fairness and wisdom. These gentlemen in particular, and the chairmen and members of all committees, have the hearty thanks of the Dean. To the Faculty Council let me say that throughout my tenure of office I have been conscious of a constant friendly support which has made my responsibilities simple. I salute the Faculty as a whole and predict for it a glorious future.

W. E. GALLIE,
Dean.

MEDICAL ATHLETIC ASSOCIATION

(September, 1945, to June, 1946)

<i>Honorary President</i>	Dr. W. E. Brown
<i>President</i>	J. W. Fyfe
<i>Vice-President</i>	J. W. Hazlett
<i>Secretary-Treasurer</i>	J. H. Davies
<i>Publicity Manager</i>	J. W. Fielding
<i>Sixth-year Representative</i>	S. Feigman
<i>Third-year Representative</i>	W. R. Lawler
<i>Second-year Representative</i>	A. B. Antoni
<i>First-year Representative</i>	J. A. Smith
<i>Ex-Service Representative</i>	W. F. Jacobs
<i>Premedical Representative</i>	J. L. Gora

As might be expected, the return of intercollegiate sport activities this last fall partially brought to an end the mounting enthusiasm which had played so big a part in student sport activities during the war years. With a changing timetable, medical students seemed completely preoccupied when it came to sports, except for the dependable few.

However in our activities throughout the year, we had a few intercollegiate representatives, about twelve of whom were awarded University colours, as well as thirty-three teams in intramural competition. It cannot be said that Medicine "brought home the bacon" during 1945-6, but it can be said that Medicine upheld its interest in University athletics with many of our students able to satisfactorily balance athletic with academic endeavours.

In January a new executive took office, and consequently a new enthusiasm and ambition entered the sports scene. In the month of April, the Medical Spring Swing was held at Casa Loma with eight students being presented with their Honour Awards and some thirty students receiving the Medical "M" for athletic competition. Judging from comments, the dance was a success.

The President of our Association, Joe Fyfe, was awarded the Medical Athletic Stick as the most outstanding athlete in the graduating year, taking into consideration leadership, sportsmanship, and athletic ability.

By laying a solid foundation of preparedness and organization, the present executive looks forward to an excellent year for 1946-7. It is our ambition to interest Medical students in athletics to such an extent that they will ignore the possibilities of osteoarthritis and attempt to develop their bodies as well as their minds so they will not enter the darkness of senility before their time.

JOHN W. HAZLETT

MEDICAL SOCIETY

(September, 1945, to June, 1946)

<i>Honorary President</i>	Dr. W. E. Gallie
<i>Honorary Secretary-Treasurer</i>	Dr. Jessie Gray
<i>President</i>	John McBirnie
<i>Vice-President</i>	P. M. Heywood
<i>Treasurer</i>	A. W. Chisholm
<i>Secretary</i>	A. H. Stevens

Due to the mid-year graduation of the final year, a change of executives in January was necessary and Mr. Murray Stephenson was succeeded by Mr. John McBirnie as President of the Medical Society. The executive has been encouragingly successful in its endeavour to provide the undergraduates with a wider variety of social and cultural extra-curricular activities.

Early in November the Medical At Home under the direction of Mr. Robert Salter was a decided success.

Later in November the famous Daffydil Night was revived after a seven-year absence under the chairmanship of Mr. John McBirnie and the show was greeted with keen enthusiasm by staff and students alike. The show played for three nights and earned for itself the assurance of annual presentation.

A new organization which grew out of Daffydil Night this year is the Medical Glee Club under the direction of Mr. Jack Finlay. This club boasts a membership of fifty voices and it is hoped that this organization will develop to meet the demands of the student body for a comprehensive music club which will include all types of musical talent.

The local C.A.M.S.I. is showing signs of renewed vigour, and a revised national constitution which calls for an annual membership fee of one dollar per

student was ratified by the medical undergraduates. Affiliation with the C.M.A. is one of the main objectives of this new C.A.M.S.I. executive under Chairman Robert Salter.

The Arts and Letters Club meetings were presented quite regularly every two weeks under the chairmanship of Mr. John Crookston. The attendance at these meetings was not as large as in previous years but there was actually a greater medical turnout than before.

The *Medical Journal* was rather irregular in its publication due mainly to a difficulty in collecting suitable articles and, to a lesser degree, to mechanical difficulties at the Press. Steps have been taken to remedy this situation in the next year. Mr. Peter Allen was succeeded in January, as Editor-in-Chief, by Mr. Robert Richter.

Mr. A. Weir, President of the service mens' year, sat as Chairman of the Veterans Committee on the Students' Administrative Council. He is to be commended for his untiring work on behalf of all veteran students.

The executive which took office in January, 1946, will remain until June, 1947, and it is hoped that the experience gained in this half-term will contribute to the capable management of student affairs in the next session.

JOHN MCBIRNIE

MEDICAL WOMEN'S ATHLETIC ASSOCIATION

(September, 1945, to June, 1946)

<i>President</i>	Jean MacPherson
<i>Vice-President</i>	Dorothy Ley
<i>Secretary</i>	Lois Lloyd
<i>Treasurer</i>	Joy MacKinnon

This year the Medical women had basketball, hockey, tennis, baseball, volleyball and swimming teams. Mention should be made of the hockey team which succeeded in reaching the play-offs.

A tea dance was given in February to raise money for equipment.

Much enthusiasm was shown as evidenced by the large number of girls who participated in the various sports.

JEAN MACPHERSON

MEDICAL WOMEN'S UNDERGRADUATE ASSOCIATION

(September, 1945, to June, 1946)

<i>Honorary President</i>	Dr. M. Davis
<i>President</i>	Dorcas Beaton
<i>Vice-President</i>	Patricia Armstrong
<i>Treasurer</i>	Wilma Train
<i>Secretary</i>	Christine Howse

This executive, under the capable leadership of the President and the guidance of the Honorary President, served its term of office from February, 1945, until January, 1946, by making for more and happy unity among the undergraduate women students.

The Christmas Party was a particularly gay affair. The girls arrived laden with toys to be distributed to poor children, and returned to their respective homes chanting carols into the frosty air.

That Medical women undergraduates may have a residence of their own is the silent or vocalized wish of the women students. The executive made special attempts to make this possible. Although the project was unsuccessful due to general housing shortage, it shall continue to be one for which succeeding executives will work.

MEDALS, SCHOLARSHIPS, AND PRIZES*Awarded at Convocation, February, 1946*

The Cody Gold Medal.....	D. A. Gibson
The Cody Silver Medal.....	T. Y. Chang
The William John Hendry Memorial Scholarship in Obstetrics and Gynaecology.....	W. J. McGanity
The Chappell Prize in Clinical Medicine.....	W. H. Allemang
The Chappell Prize in Clinical Surgery.....	F. E. Bryans
The Ontario Medical Association Prize in Hygiene and Preventive Medicine.....	W. H. Allemang
The Roy Simpson Scholarship in Paediatrics.....	D. A. Gibson
The David Dunlap Memorial Scholarship.....	D. A. Gibson

Awarded at Other Periods

B'Nai B'Rith Scholarship.....	R. G. McCendie
Baptie Scholarship.....	I. E. Alger
Alec Garalick Scholarship.....	J. A. Beswick and R. M. Hines (Aeq.)
Posluns Brothers Scholarship.....	E. R. Yendt
David Dunlap Memorial Scholarship in Psychology (Second medical year).....	P. Klotz
The Ronald S. Saddington Medal in Pathology.....	J. H. Crookston
David Dunlap Memorial Scholarship in Psychology (Third medical year).....	Miss C. R. Aszkanazy
The Medical Alumni Scholarship.....	L. P. Laing
The J. J. Mackenzie Fellowship in Pathology and Bacteriology.....	J. G. Watt, M.D.
The Faulkner Medal in Psychiatry.....	L. E. Carpenter, M.D.

REGISTRATION OF STUDENTS IN THE FACULTY OF MEDICINE

SESSION 1946-7

First premedical year	195
Second premedical year	143
First medical year	163
Second medical year	154
Third medical year	127
Fourth medical year	130
Diploma in Public Health	27
Diploma in Psychiatry	5
Diploma in Radiology	8
Art as Applied to Medicine	5
Bachelor of Science (Medicine)	3
	<hr/>
	960
Refresher course for general practitioners, October 15 to November 9	25

ANATOMY*Under the direction of Professor J. C. B. Grant*

The number of students studying Gross Anatomy has been mounting gradually during the last decade. Indeed, during this period it has more than doubled itself, rising from 422 to 872.

During the last session only one-third of the 872 were undergraduate students in the Faculty of Medicine. These 872 students were distributed as follows and 12 separate lecture and laboratory courses in Anatomy were provided for them:

Medical, first year	170
Medical, second year	121
Dental, regular	84
Dental, special	4
Graduates (M.S. course)	20
Physical and Health Education	81
Physical Therapy, first year	66
Physical Therapy, second year	59
Occupational Therapy, first year	129
Occupational Therapy, second year	83
School of Nursing	29
Optometry	21
Miscellaneous	5

In addition, four courses in Histology were given: one to medical students, a second to dental students, a third to students of the School of Physical and Health Education, and a fourth to students taking the course in Physiology and Biochemistry.

As there was a great shortage of demonstrators until the second half of the session, when a number of excellent men, released from the services, came to our aid, there was a very considerable load on all members of the staff, teaching and technical and secretarial.

It is noteworthy that the ex-service students worked very diligently and did very well, whereas the students who were repeating the year mostly continued to do very poorly and in many cases to fail a second time. It is evident that the class as a whole misses the time previously provided for review work.

The three members of the staff who had been granted leave of absence during the war have now returned to their former duties: (a) Surgeon Lieutenant Commander C. G. Smith has taken charge again of the teaching of Neurology which in his absence was under the care of Dr. Cates; (b) Lieutenant Colonel H. E. LeMasurier, O.B.E., returned to the post of Senior Technical Assistant. Before and at the outbreak of war he was Quartermaster of No. 7 Field Ambulance, with the rank of Lieutenant. He went overseas as Quartermaster of No. 15 General Hospital, but was soon promoted to be Assistant Medical Director (A.M.D. 3) at Canadian Military Headquarters in London, England. He held this highly responsible commission until February, 1946, when he resumed his peace-time duties in the Department. But now, three months later, he has been offered, and has accepted, the managership of Sunnybrook Hospital, an office for which his executive ability, his military experience, and his personality seem particularly to fit him. This is a great loss to the Department and also to the University which he has served for twenty-two years. (c) Corporal C. Storton came back to his duties as Museum Technician and Prosector, where the accumulated work of several years awaits him.

Last year Dr. Watt gave the lectures in Embryology, which formerly were given by Dr. Piersol, until the time of his retirement.

Dr. Watt, Dr. Cates, and Dr. Smith have each conducted a series of evening classes on Anatomy for graduates who are proceeding to higher degrees or to diplomas. Dr. Cates has completed a manuscript on Anatomy for non-medical students—an expanding body of students who hope to enter professions ancillary to medicine.

RESEARCH

Under the direction of Professor A. W. Ham

A programme of cancer research, supported by a grant from the Ontario Cancer Treatment and Research Foundation, was carried on in the Department. A colony of mice of suitable strains was established and mammary tumours of the

"milk-factor" type were transplanted into the yolk sacs of fertile eggs and grown in this relatively antibody-free medium. Tumours so grown were transferred to other eggs before the eggs hatched. One tumour has now been transferred eighteen times. That the tumours become increasingly toxic after many passages through eggs, as first indicated by Bittner, has been confirmed by this work. Vaccines for testing are now being prepared from this material of enhanced toxicity. This work is being carried on by Dr. M. Armstrong.

Experiments on tissue transplantation were also continued. Thus, Dr. Ham collaborated with Dr. Cloutier in further work on the vascularization of skin grafts. He collaborated also with Dr. Stuart Gordon in determining the fate of fragments of cancellous bone transplanted into bony defects. The results of both studies were presented to the section of Plastic Surgery of the sub-committee on Surgery of the National Research Council which assisted these researches with grants. Dr. M. Armstrong completed her work in connection with the factors influencing the take of free adrenal cortical grafts of the capsule type. It is now being prepared for publication.

PUBLICATIONS

- GRANT, J. C. B. and CATES, H. A. *A handbook for dissectors* (second edition). Baltimore: Williams & Wilkins. 1945.
- LEMASURIER, H. E. with BRANDON, H. D. and MARCELLUS, F. N. "Observations on unabsorbed yolks in chicks" (*Poultry Science*, May, 1946, pp. 300-2).

ART AS APPLIED TO MEDICINE

Under the direction of Miss Maria Wishart

In the past year, as you know, we embarked on a new venture, establishing in conjunction with the illustrative work a three-year diploma course for the training of medical artists.

This undertaking so far has been successful and most interesting. No small part of the success is due to the generous kindness of Dr. W. Boyd in temporarily loaning a most excellent ground-floor room for use as a classroom. Without this assistance we could not have carried on, as upstairs in the Illustration branch of the Department the increasing handicap of inadequate, poorly adjusted space, created a state of disorganization which was almost paralyzing. Here again, Dr. C. H. Best most generously helped out by permitting the use of a small room nearby. To both Dr. Best and Dr. Boyd I would extend my sincerest appreciation of their sacrifice, for space in all departments is at a premium.

Adequate space in the future, dependent on the building plans of the University, has been promised. Meantime the acute situation will be slightly eased in the coming year by arrangements which have just been completed for improved lighting in the above-mentioned room, and some rearrangement of cupboard space.

To two members who are retiring from the Faculty this year go my warmest thanks: to Dr. Ryerson for his unfailing kindness and help to one unversed in Faculty procedure; and to Dr. Scott for the support which was conveyed through a feeling of faith in the Department, and marked by his thoughtful parting present of some books on Gynaecology and Obstetrics.

Miss Wishart, accompanied by Mrs. J. R. Ross (Eila Hopper), attended the meeting of the Association of Medical Illustrators in Chicago last July. Miss Wishart was elected to the Board of Governors for a four-year period, and has since been appointed to both the Finance and Membership Committees of the organization. Mrs. Ross was appointed Chairman of the Canadian division.

Mrs. Louise Gordon, an artist with experience in moulage, has been with the Department temporarily. She and Miss Wishart have done considerable experi-

mental work on the use of latex and plastics in connection with modelling. Mrs. Gordon prepared some exceptionally fine models in conjunction with Dr. Harris' work on flat feet.

Illustrations from the Department have been used during the past year at the following meetings: Canadian Medical Association, Banff; Central Surgical Society, Chicago; Ontario Medical Association, Toronto; Physiological Society of Great Britain, London; Association of Genito Urinary Surgeons, Stockbridge, Mass.; Toronto Biochemical Society; Conference on Vitamins, Gibson Island, Md.; American Orthopaedic Association, Hot Springs, Va.

Illustrations have been, or are about to be, published in Dr. J. C. B. Grant's *Atlas of Anatomy*, second edition; Dr. W. Boyd's *Surgical Pathology*; Dr. A. W. Ham's *Textbook of Histology*; *The British Treatise of Surgery*; *Journal of Surgery, Gynecology and Obstetrics*; *British Journal of Surgery*; *University of Toronto Medical Journal*; *Annals of Surgery*; and in the *Journal of Bone and Joint Surgery*.

It is of importance to the University and to the Faculty of Medicine that the Department of Art as Applied to Medicine should be successful in its undertakings. These are: to maintain and to develop further a recognized place of the first rank in the Medical Visual Education field for the University; to fulfil its part capably in interpreting the work of the Faculty; and to conduct a teaching course to supply the demand for qualified medical artists on the one hand and for a first-class training centre on the other. The obtaining of these objectives will depend largely on the co-operation, support, and interest of the various departments of the Faculty, and on the co-ordinated unity of purpose of the individual members of the staff. I am most anxious to awaken an awareness of these points, and for this reason feel that this report should not be merely a factual listing of the work accomplished during the year, but should include other intangible aspects which contribute to the general picture. It is therefore fitting to mention some factors which combined to make the establishment of a teaching course a logical step.

During the war years it became evident that the demand for medical artists would be greater than the supply. The medical men returning from overseas had learned the value of Visual Education, and were eager to record their work in writing and illustration. Complementing this need was the increasing interest shown by Canadian artists in following Medical Illustration as a profession. Constant inquiries "Can Medical Illustration be studied in Canada?" were received, particularly from those eligible for training under the Rehabilitation plan. Again, the retirement of Max Broedel from the teaching field accentuated the need for establishing the course.

In order to have correct perspective and proportion it is necessary to go back to the day when Max Broedel led the field in Medical Illustration. Photography and moulage work were then considered "poor relations." Today, advanced by science, they are undisputed contributors in their own right to the field of Medical Visual Education. Thus the field is enlarged and with the passing of Max Broedel and the intervening war years a change of thought is taking place as indicated by the wider term "Medical Visual Education," by the appointment of trained medical artists as art editors to publishing houses handling medical books, by the establishment of an Association of Medical Illustrators, who will set up certain standards for membership and education.

The following are a few of the aspects which this wider approach to Medical Visual Education presents to the University as a whole: Should the teaching and working facilities of the Department be enlarged to serve associated medical fields who also require teaching material—such as the Schools of Dentistry, Nursing, and Physical Health Education? Should not the facilities of the Department be enlarged to meet the needs of all on the staff? Graphs, based on good design, variety

of lettering, balanced weight of lines, have great illustrative qualities. Their development from this point of view has been neglected, yet there are those departments whose work is best illustrated by such graphs rather than pictures.

Over the years there have been requests from the members of the staff, research and postgraduate workers, interns, medical students, and premedical students, for instruction in drawing, colour, half-tone, and pen and ink techniques; in casting, modelling, assaying of colour, lettering, etc. If a doctor is able to record his own research work graphically, a very authentic contribution is made to medical science. Many men with marked innate artistic ability pass this way. It seems a very short-sighted policy not to assist in developing their facility.

Increasingly, a considerable amount of my time is devoted to assisting individuals, hospitals, universities, etc., with advice on their problems, ranging from scientific colour matching to setting up a Medical Visual Education or a teaching department. These added activities in conjunction with teaching leave less time for creative work, but are a necessary part of the growth of the departmental work.

PUBLICATIONS

WISHART, M. T. "Medical illustration" (*The Canadian Hospital*, vol. 23, no. 5, pp. 34-7).

BIOCHEMISTRY

Under the direction of Professor H. Wasteneys

Dr. Bruce F. Crocker returned from active service with the R.C.A.F. and Dr. Fisher, having been relieved of the position of Special Lecturer in Zoology which she undertook as a substitute for Professor K. C. Fisher while he was on active service, returned to full duty.

The teaching arrangements in connection with the courses given in the Department were adjusted to the extent that Dr. Crocker replaced Professor Wynne as lecturer to the students in Household Economics and Household Science and Professor Wynne conducted the courses for students in honour Science. The other teaching responsibilities of the Department were distributed as in recent years.

Four graduate students, Messrs. J. F. Morgan, S. J. Patrick, S. Zbarsky, and I. Motzok were awarded the Ph.D. at the spring Convocation. The theses submitted by Messrs. Morgan, Patrick, and Zbarsky embodied investigations carried out on behalf of the Directorate of Chemical Warfare. One graduate student, Miss Lourie, received the M.A. degree.

The teaching laboratory space available in the Department was severely taxed by the increased number of students. Any further augmentation of numbers will necessitate the provision of extra accommodation.

The total number of students registered in the Department during the session was 464. This number was made up of 289 medical students, 22 students of the General Course, 19 in Physiology and Biochemistry, 1 in Biology and Physics, 7 in Biology, 1 in Chemistry, 42 in Dentistry, 45 in Household Economics, 1 in Household Science, and 37 graduate students. Of the graduate students, 16 were candidates for the Ph.D. degree, 13 for the M.A. degree, and 8 were occasional students. Eight students were candidates for the M.A. in this Department and 10 candidates for the Ph.D. degree took their major work in Biochemistry.

Various researches on chemical warfare problems which had been in progress in the Department since 1940 were concluded during the months which followed the war's end. Some of the results of these researches, namely those obtained from studies of BAL (British anti-Lewisite), made under Professor Leslie Young's direction, have now been released for publication by the Department of National Defence. Chemical warfare studies made by Dr. J. F. Morgan and Mr. G. S. Stewart under Professor Wynne's direction are, however, still on the secret list.

A brief review of the work on BAL has already been published and detailed papers are in course of preparation. BAL, which is the most effective antidote to arsenic yet discovered, was the subject of investigations in this Department by Mr. S. D. Simpson, Dr. S. H. Zbarsky, Mr. M. Berenbom, and Mr. L. A. Manson. Apart from its use as an antidote to Lewisite, BAL has certain peace-time uses, and work on this agent is being continued by Messrs. Simpson and Berenbom.

Work on "Tracers," in particular, radioactive sulphur, which has been in progress in the Department since 1941 in connection with Chemical Warfare problems, is being carried on by Dr. J. C. Laidlaw and Mr. Berenbom under Professor Young's direction.

Professor Young has resumed his study of the metabolism of toxic organic compounds and has succeeded in showing that naphthalene is converted *in vivo* to a hitherto unknown compound which he has identified as 1,2-dihydro-naphthalene-1,2-diol. Under Dr. Young's direction Mr. Manson investigated the metabolism of 2-naphthylamine, a carcinogenic agent which is now recognized as a hazard in the dye-stuffs industry. In another phase of Dr. Young's study Mr. Berenbom succeeded in isolating and identifying several metabolic derivatives of 1- and 2-naphthol from the urine of rats dosed with these compounds.

Dr. I. Motzok of the Department of Animal Nutrition of the Ontario Agricultural College, completed, under Professor Wynne's direction, a study of the alkaline phosphatase of chick plasma. The investigation was concerned mainly with a detailed examination of factors affecting the activity of the enzyme *in vitro* and with a quantitative study of the variations in the amount of the enzyme in the blood plasma in relation to the severity of rickets in chicks reared on diets containing different amounts of vitamin D. On the basis of these studies a new method of vitamin D assay for commercial preparations was devised. Mr. D. Rose, also under Professor Wynne's direction, completed an investigation of the metabolism of *Aerobacillus polymyxa*, an organism which ferments starch with the formation of 2,3-butane diol. This investigation was carried out in co-operation with the division of Applied Biology of the National Research Council. Mr. J. D. O'Reilly studied the enzymes in yeast and animal tissues concerned with glucosamine metabolism. Mr. A. W. Jackson investigated certain properties of the acid phosphatase of horse erythrocytes. The erythrocytes were generously provided by Mr. M. D. Orr of the Connaught Laboratories. Dr. H. B. Stewart, who returned in March after service as a Medical Officer in the R.C.N., has commenced an investigation of the effects of lysine deficiency in experimental animals.

Dr. B. F. Crocker has commenced an investigation of the mechanism of the formation of enzymes and Professor Townsend, who is Professor of Apiculture at the Ontario Agricultural College, is continuing a study of the nutrition of the honey-bee which he began in 1939 with Dr. C. C. Lucas in the Department of Medical Research. His present study with Dr. Crocker is a chemical examination of various plant pollens collected by bee colonies in order to discover, if possible, components of the pollen which are significant for brood-rearing.

PUBLICATIONS

YOUNG, L. "Canadian researches on BAL" (*Science*, vol. 103, 1946, pp. 439-40).

——— "The metabolic conversion of naphthalene to 1,2-dihydro-naphthalene-1,2-diol" (*Canadian Chemistry and Process Industries*, vol. 30, 1946, p. 124).

HYGIENE AND PREVENTIVE MEDICINE

Under the direction of Professor D. T. Fraser

The enrolment of physicians in the course for the diploma in Public Health for the session 1945-6 was 34. One student registered for the diploma in Industrial Hygiene; 2 students for the diploma in Dental Public Health and 4 students for

the diploma in Veterinary Public Health. This is the largest class to be enrolled up to the present time. Because of the many requests of students retiring from the armed forces, to pursue postgraduate work for the diploma in Public Health, a summer session was agreed upon. Classes for a second group were therefore resumed early in April of this year. Thus the instruction will have been continuous for the staff from September of 1945 till the spring of 1947. The number of students enrolled in April, 1946, for the diploma was 31. A large number of the students in both the courses have served in the armed forces; in the course started last September, 23 in the D.P.H. and 5 in the other diploma groups; 27 in the summer D.P.H. course. Seven physicians were on fellowship, three granted by the Rockefeller Foundation and four from the Connaught Medical Research Laboratories. Including the students of this year, the total number enrolled since 1911 is 391.

As in previous years, courses of instruction in Bacteriology, Immunology, and Parasitology were given to the students in the course leading to the diploma in Public Health, diploma in Dental Public Health, diploma in Industrial Hygiene and diploma in Veterinary Public Health, and also to suitably qualified graduate students.

The field course for final-year medical students was held in June, 1945. It is a pleasure to acknowledge the full co-operation of the Department of Health of Ontario and the Department of Public Health, Toronto.

Instruction was provided in the form of a tutorial and lecture course in Preventive Medicine, Hygiene, and Sanitation for students in the first, second, and third medical years in the Faculty of Medicine. In accordance with the change in curriculum instruction for the fourth medical year was not given. A new course equivalent in many respects to the former field course will be given to this group, commencing in September, 1946, and extending throughout the session.

Briefly stated, the purpose of these courses is to present to the student the problems and practises of preventive medicine. The chief emphasis in this presentation is laid upon the means by which the general practitioner may most effectively practice preventive medicine; and the duties and obligations towards society imposed upon the physician by legislative enactments and the role he plays in, and the assistance he may derive from, organized preventive medicine.

Laboratory courses and lectures were given as usual to the students in the second year in Pharmacy; second- and third-year Household Science and Household Economics; third-year Physiology and Biochemistry; third-year Physical and Health Education; and to students in the School of Nursing.

A comparison of the numbers of students receiving instruction in the Department shows that the numbers have more than doubled: 483 students in 1944-5 and 1,138 in 1945-6.

The enrolment for the session has been as follows:

Candidates for the diploma in Public Health.....	65
Candidates for the diploma in Veterinary Public Health.....	4
Candidates for the diploma in Dental Public Health.....	2
Candidate for the diploma in Industrial Hygiene.....	1
Graduate students.....	5
Faculty of Medicine, fifth year	136
third medical year.....	129
second medical year.....	123
first medical year.....	170
Faculty of Arts, Household Economics, third and fourth years....	101
Physiology and Biochemistry.....	12
Faculty of Household Science, second and third years.....	4
School of Physical and Health Education, third year.....	25
School of Nursing.....	143
Ontario College of Pharmacy, second year.....	218

RESEARCH

Dr. M. H. Brown upon his return from six years overseas has resumed his studies on the antigenicity of typhoid vaccines. Mr. A. J. Bishop, with the co-operation of Lieutenant Colonel G. Luippold, Medical Corps, U. S. Army, has compared the antigenicity of the typhosus strain used for vaccine in the United States armed forces with the strain of the Connaught Medical Research Laboratories. The typhoid strain (Rawlings) furnished to the armed forces of Canada was shown by mouse protection to be in every way comparable to the strain used in the vaccine prepared at the Army Medical School, Washington. Similarly, the paratyphosus strains used in the American vaccine were compared with those used locally and were found to be equivalent antigenically. Typhoid vaccines in current use in Great Britain, the United States, and Canada were compared and found to be of equal antigenicity. Mrs. Olga Mary Podoski has prepared staphylococcus bacteriophages suitable for classifying strains of staphylococcus.

Dr. Ronald Hare and his associates have devoted the major portion of their time to exploring the methods of preparation of influenza vaccine with a view to large-scale production. This work is aided by a grant from the National Research Council. In collaboration with Captain Hudecki and Captain Barnes a small epidemic of influenza at Camp Borden was investigated. Dr. Hare has also investigated the methods by which virus infections of the naso-pharynx are disseminated. A report on this subject is in course of preparation.

Dr. Siebenmann and Dr. Helen Plummer have continued their studies in the treatment of anaerobic infections in mice with penicillin, sulpha drugs, and anti-toxin. Dr. Frieda Fraser has continued her laboratory and clinical studies in antibiotics.

Dr. E. Kuitunen has continued her investigations of fundamental problems in malaria, using *Plasmodium gallinaceum* in chickens. Attention has been directed to a study of resistance to infection as well as to a study of the life history of the sexual stages of the parasite. A survey of rats for *Trichinella spiralis* is being carried on in co-operation with the Department of Public Health, Toronto.

Dr. F. O. Wishart with the co-operation of Dr. C. W. Carr of Cookstown has conducted a study of the antitoxin response in children given a secondary stimulus of diphtheria toxoid.

The report of research in the sub-department of Virus Infections which deals mainly with Dr. Craigie's researches in typhus fevers and allied problems will be given elsewhere.

PUBLICATIONS

- CRAIGIE, J., WATSON, D. W., CLARKE, E. M., and MALCOMSON, M. E. "The serological relationships of the rickettsiae of epidemic and murine typhus" (*Canadian Journal of Research*, vol. E24, 1946, pp. 84-103).
- HARE, R. "The present status of vaccination against influenza" (*Canadian Journal of Public Health*, vol. 37, 1946, pp. 83-9).
- KUITUNEN-EKBAUM, E. "The incidence of pinworm infection in a military camp in Ontario" (*Canadian Journal of Public Health*, vol. 36, 1945, pp. 430-1).
- "Phenothiazine in the treatment of enterobiasis. II" (*Canadian Journal of Public Health*, vol. 37, 1946, pp. 110-13).
- SIEBENMANN, C. O. and PLUMMER, H. C. "On the action of marfanil and other anticlostridial agents on anaerobic blood agar plates" (*Journal of Pharmacology and Experimental Therapeutics*, vol. 84, 1945, pp. 291-300).
- WILSON, R. J. "The production of phase I pertussis vaccine in casein hydrolysate broth" (*Canadian Journal of Public Health*, vol. 36, 1945, pp. 321-7).
- WISHART, F. O. "Immunization—Ways and means of controlling communicable diseases" (*Canadian Journal of Public Health*, vol. 37, 1946, pp. 155-9).
- "Let's fight disease" (*Health*, vol. 13, 1946, pp. 8-11).
- and PEQUEGNAT, L. A. "Tuberculin testing" (*Canadian Journal of Public Health*, vol. 37, 1946, pp. 7-11).

MEDICAL JURISPRUDENCE

Under the direction of Dr. K. G. Gray and Professor W. L. Robinson

The lecture course this year was somewhat curtailed because of the general shortening of the medical curriculum. We were only able to give, in all, some fourteen lectures.

Dr. Kenneth Gray took half of these lectures to cover the field of Law, in relation to the medical profession. His lectures have always been most instructive and interesting to the students.

Professor Robinson and Dr. Smirle Lawson carried on as usual with lectures in Pathology, as related to legal medicine. We were able to complete this course, although obliged to give only the essential parts of it.

It is our hope to have more time next year in order to cover, in more detail, matters pertaining to legal medicine.

MEDICINE

Under the direction of Professor Duncan Graham

Shortly after the opening of the session the following members of the staff on active service rejoined the Department: Drs. R. A. Cleghorn, J. A. Dauphinee, J. W. Graham, R. B. Kerr, R. I. Macdonald, D. J. Prendergast, J. C. Richardson, A. H. Squires, J. A. Walters, and N. M. Wrong. Four former fellows who had returned from active service overseas were appointed to the staff: Drs. R. C. Dickson, W. F. Greenwood, W. A. Oille, and K. J. R. Wightman. Dr. A. M. Doyle, another returned medical officer and a graduate of the University of Toronto, was also appointed. The return of members of the staff and these new appointees have made it possible to resume the pre-war programme of instruction in the Department.

Dr. Dauphinee has again taken charge of the weekly lectures and demonstrations in Physical Diagnosis and History-taking and in Clinical Microscopy. Monthly meetings of clinical instructors for discussion of methods of physical examination, the interpretation of physical signs, the fundamental mechanism and significance of common symptoms, and methods of history-taking were held. In the new course in Medicine introduced this session, instruction in these subjects begins in the second quarter of the second year while the students are still receiving instruction in Anatomy, Physiology, and Biochemistry. It is hoped that this new arrangement of the curriculum will provide a more co-ordinated course of instruction in the pre-clinical and clinical subjects.

In association with the other clinical departments, a two months' refresher course in Internal Medicine was given in February and March for returned medical officers. Two graduates were given a special course of instruction in Electrocardiography, and two other graduate students are receiving postgraduate training in Dermatology and Syphilology. A number of former fellows and interns who had been serving as medical officers with Navy, Army, or Air Force visited the Department during the year. Many of them are attending ward rounds in the hospital and observing work going on in the Department.

The Department regrets to announce the retirement of Dr. W. E. Ogden, Senior Demonstrator in Medicine, and the resignation of Drs. R. A. Cleghorn, A. E. Parks, and D. J. Prendergast, Junior Demonstrators in Medicine. Dr. Ogden, having reached the age limit, retires at the end of the present academic year. Dr. R. A. Cleghorn has accepted an appointment in the Department of Psychiatry of McGill University, beginning September next. Dr. Parks, who returned from overseas in March, has accepted a full-time appointment with the Canada Life Assurance Company. Dr. Prendergast has requested to be relieved of his teaching post in order that he may devote more time to private practice.

The Department regrets to report that Dr. E. E. Cleaver, Associate in Medicine, was taken ill at the close of the session and acting upon the advice of his physician asked to be relieved of his hospital and teaching duties with the Department of Medicine. Dr. Cleaver has been a valued member of the staff for twenty-five years and it is with deep regret that the Department records his retirement.

The Department is pleased to record that the following additional members of the staff have received awards or mention in despatches in recognition of distinguished services during the war: Lieutenant-Colonels J. A. Dauphinee and R. B. Kerr were appointed Officers of the Order of the British Empire, and Wing Commander R. F. Farquharson a Member of the Order of the British Empire. Lieutenant-Colonel W. A. Oille and Major K. J. R. Wightman were mentioned in despatches.

Dr. R. F. Farquharson was elected President of the Royal College of Physicians and Surgeons of Canada.

The Department is pleased to record that Dr. J. W. Magladery, a former Senior Intern at the Toronto General Hospital and at present a graduate student in the Department, has received an appointment as Assistant Professor of Medicine at Johns Hopkins University.

RESEARCH

During the last years of the war there was an almost complete interruption of the clinical research programme of the Department of Medicine due to the enlistment for active service of all junior members of the staff and the added teaching and hospital duties assumed by the remaining members. With the return of members of the staff on active service shortly after the opening of the present session, the investigation of pre-war problems has been resumed and work started on new problems.

In their earlier study of the serum-protein pattern in various diseases, Drs. Campbell and Dauphinee discovered a new protein not present in normal blood but appearing in the blood stream in infection and in certain chronic diseases, and developed a simple clinical test for the detection of this protein in the blood serum. A more intensive study of the clinical significance of the presence in the blood of this new protein in various diseases has been undertaken.

Dr. W. E. Hall is studying the behaviour of serum proteins after the administration of fluid in different clinical conditions.

Drs. Campbell and Dauphinee are modifying their method for the estimation of iron in serum and in hæmoglobin and are applying this method in a study on iron metabolism.

Dr. Campbell has continued his observations on the use of thiouracil in the treatment of hyperthyroidism. New derivatives of thiouracil of lessened toxicity are now being studied.

Drs. Fletcher and Kerr are investigating the changes in plasma globulin and fibrinogen in rheumatoid arthritis.

Dr. J. W. Graham has begun a study of the local tissue lesions in rheumatoid arthritis and in fibrositis.

Dr. Cleghorn has resumed his investigations on Addison's disease, giving special attention to the causation of the anæmia so commonly found in this disease. He is also making a special study of blood volume changes in anæmia.

In the past year patients suffering from sub-acute bacterial endocarditis have been treated by penicillin. An attempt was made to determine the daily dosage of penicillin and the minimum period of treatment likely to achieve the best results in the treatment of this disease. Dr. Rykert is preparing a preliminary report on the results of this investigation.

Drs. Trow and Dixon have published a report of their study on the intensive treatment of early syphilis with mapharsen. A similar study of the treatment of early syphilis with penicillin and with penicillin and mapharsen is now in progress.

Dr. Wightman is making a careful metabolic study on patients with steatorrhœa.

Dr. C. Gray has investigated the incidence of hypertension in a large series of cases of mitral stenosis. A report of this work will be published shortly.

Dr. I. M. Hilliard is investigating the effect of very low salt diet in patients with chronic heart disease with failure.

PUBLICATIONS

ANGLIN, A. A. and ROGERS, E. "Chronic disseminated tuberculosis" (*Canadian Medical Association Journal*, vol. 53, 1945, pp. 586-7).

BATES, G. "Venereal diseases are of economic origin" (*Health*, vol. 12, 1945, pp. 15, 28-9).

BURTON, C. R. "The value of Lead IVF in cardiac infarction" (*American Heart Journal*, vol. 30, 1945, pp. 259-75).

FARQUHARSON, R. F. "Principles of penicillin therapy" (*Canadian Medical Association Journal*, vol. 53, 1945, pp. 199-204).

_____ GREEY, P. H., and TOWNSEND, S. R. "Results of penicillin therapy" (*Canadian Medical Association Journal*, vol. 53, 1945, pp. 1-9).

HYLAND, H. H. "The diagnosis of Ménière's syndrome" (*Bulletin of the Academy of Medicine*, vol. 19, 1945, pp. 8-11).

McPHERDAN, J. H. "How to meet changing conditions in medicine" (*Canadian Medical Association Journal*, vol. 54, 1946, p. 60).

TROW, E. J. and DIXON, H. A. "Intensive treatment of early syphilis with oxophenarsine hydrochloride by multiple injections" (*Archives of Dermatology and Syphilology*, vol. 52, 1945, pp. 155-61).

WRONG, N. M. "Sulfonamide dermatitis" (*Canadian Medical Association Journal*, vol. 53, 1945, pp. 9-12).

_____ and MACKENZIE, D. J. "Some aspects of penicillin therapy in early syphilis" (*Canadian Medical Association Journal*, vol. 54, 1946, pp. 443-5).

OBSTETRICS AND GYNAECOLOGY

Under the direction of Professor W. A. Scott

With the return of the Faculty to its peace-time basis the work of the Department is again back to normal. The fact that this is the first year of the new course in Medicine has, as yet, made no great change in the work, as the principal innovation, a new system of teaching, will not commence until the first final year begins its course next fall. In the new course one-quarter of the time will be devoted to a combined course in Obstetrics and Gynæcology and Pædiatrics, and during that period each student will devote all his time to these subjects. Teaching will be given on six mornings and five afternoons a week. It is felt that the course will be much better, but will entail considerably more instruction on the part of the staff because of the afternoon teaching and the necessity of repeating the course four times in each academic year.

A refresher course was given in January to a group of returned men, and provision has been made for a similar course in the future if it is desired.

Probably the most pressing post-war problem is the providing of facilities for postgraduate training of men wishing to qualify as specialists in this Department. The facilities for thorough training of such candidates is limited by the amount of clinical material, and all available posts are filled until July 1, 1948, with a considerable waiting list thereafter.

In conjunction with the other departments, we are preparing to provide advanced refresher courses for candidates who may have taken their practical training elsewhere and wish concentrated instruction preparatory to going up for examination, either for fellowship in the Royal College of Physicians and Surgeons of

Canada, or for certification as specialists in Obstetrics and Gynæcology. With the curtailing of opportunities for postgraduate training in American and British schools, a much increased demand for such training now exists in Canada, and presents a challenge not only to the teaching hospitals but to the non-teaching hospitals also.

With the return of Dr. M. C. Watson to his duties with the Department, the gynæcological endocrine clinic has been re-established. Here an effort is being made to set up clinical standards by which normal and abnormal ovarian function can be evaluated in patients presenting the symptoms of amenorrhœa, dysmenorrhœa, sterility, functional uterine bleeding, and the menopause. One paper has already been published by Dr. Watson in this connection since his return.

Dr. Cosbie and Dr. McArthur are continuing their work on the radiological treatment of gynæcological cancer in co-operation with Dr. Richards of the Department of Radiology.

During the past winter Dr. Henderson conducted a class in the evenings on Gynæcological Pathology which was attended by interns and some members of the staff. This course proved of great value and will probably be continued.

PUBLICATIONS

1944-5

SCOTT, W. A. "Ectopic gestation" (*Bulletin of the Vancouver Medical Association*, vol. 21, pp. 81-6).

——— "Genital prolapse" (*Bulletin of the Vancouver Medical Association*, vol. 21, pp. 75-8).

——— "Heart disease in pregnancy" (*Bulletin of the Vancouver Medical Association*, vol. 21, pp. 78-81).

——— "Surgical complications during pregnancy and labour" (*American Journal of Obstetrics and Gynaecology*, vol. 49, pp. 494-507).

1945-6

COSBIE, W. G. "Uterine bleeding" (*Manitoba Medical Review*, vol. 26, Jan., 1946, pp. 9-12).

JOHNSTON, H. W. "Treatment of myomas in pregnancy which are undergoing degeneration" (*Canadian Medical Association Journal*, vol. 53, no. 4, pp. 366-7).

LOW, D. N. "Endometriosis" (*Canadian Medical Association Journal*, vol. 53, no. 1, pp. 49-52).

SCOTT, W. A. "Selective treatment of antepartum hæmorrhage" (*American Journal of Obstetrics and Gynecology*, vol. 51, no. 1, Jan., 1946, pp. 48-56).

OPHTHALMOLOGY

Under the direction of Professor W. W. Wright

The session of 1945-6 can be looked on as a transitional one. During the year Dr. H. M. Macrae returned from overseas and Dr. A. E. MacDonald, who was doing some consulting work with the Navy, and Dr. J. F. A. Johnston, who was doing similar work with the Army, were relieved of their service duties. In addition to these senior members of the staff, several well-trained young men have returned from the services. Dr. A. J. Elliot has already been appointed to the staff, and Drs. John S. Crawford, J. C. Hill, and Clement McCulloch have been recommended for appointments next year.

Undergraduate teaching went on as usual during the year and it was gratifying to note a considerable improvement in the general knowledge of the students, due largely to dividing the final marks between the results on the sixth-year orals, attendance and interest in clinics, and a short written paper at the end of each trimester in the fifth year.

Owing to the fact that postgraduate courses in the United States have been practically closed to Canadians, we have had to broaden postgraduate training for ophthalmologists here. As the requirements for certification include two years in-

ternship, it was thought advisable to concentrate on turning out fully trained ophthalmologists rather than give a shorter course to more men who would be only partially trained. At present, using the facilities of the Toronto General Hospital and Hospital for Sick Children, we are graduating two well-trained men a year and hope to increase this number in the future by closer affiliation with St. Michaels and the Western Hospitals. As well as the clinical work, these men are getting a comprehensive course in the basic sciences.

During the year the Department was very fortunate in being offered two fellowships in ophthalmology. These have been filled for the coming session, but there are openings for 1947. Details can be obtained from the Dean, or the Professor of Ophthalmology.

During the year our special department of pathology, under Dr. Harold Hodgson, functioned very satisfactorily; 159 specimens were received from the University hospitals, outside hospitals, and surgeons, and from the Provincial Laboratory. I would again like to extend to outside oculists the privilege of using this service which, we feel, is to the mutual benefit of the oculists and the University.

Under a new professor and a keen, enthusiastic staff, I look forward to a bright future for the Department of Ophthalmology.

PUBLICATIONS

- ELLIOT, A. J. "Conjunctivitis" (*Bulletin of the Academy of Medicine*, vol. 19, 1946, p. 172).
 ——— "Duane's retraction syndrome" (*Proceedings of the Royal Society of Medicine*, vol. 38, 1945, p. 463).
 ——— "Significance of aniseikonia in aviation" (*Archives of Ophthalmology*, vol. 35, 1946, p. 354).
 HODGSON, T. H. "Early occurrence of melanotic sarcoma of the choroid" (*Ontario Medical Review*, April, 1946).

OTO-LARYNGOLOGY

Under the direction of Professor A. A. Campbell

During the past year the staff has carried out the usual routine work of this Department much as in former years.

Clinically, much attention has been given to the local and general effects of chemotherapy on infections of the ear, mastoid, and nasal accessory sinuses including osteomyelitis of the skull. The impressions gained are: that patients who have had a well-balanced diet and who have received adequate chemotherapy will require much less surgical interference in the future than was the case in the past.

During the year Lieutenant Colonel Ireland and Brigadier C. Rae have returned from the armed forces.

PAEDIATRICS

Under the direction of Professor Alan Brown

It is with great regret that we have lost the services through resignation of Drs. Alan Canfield, George E. Smith, and Alfred P. Hart, who have served the Hospital for Sick Children and the University for forty, thirty, and twenty-five years respectively. All three have made an excellent contribution, during these periods, to both institutions.

The Hospital for Sick Children has just completed a successful campaign to collect seven and a half million dollars to enable them to construct a new building to house patients and research laboratories.

In addition, the Board of Trustees of the Hospital have approved of a plan to place four senior and seven junior physicians on a full-time basis and are prepared to back the scheme financially. This is a decided forward step which will mean more and better research as well as being of material benefit in teaching undergraduate and postgraduate students.

RESEARCH

In collaboration with the Canadian Dental Corps and the medical branch of the Royal Canadian Air Force, studies have been conducted on the effects of various nutrients on the incidence of gingivitis. Administration of large amounts of vitamins A and D, thiamine, riboflavin, nicotinic acid, and ascorbic acid for a period of five months had no clinical effect on pre-existing inflammation of the gingivæ. When gingivitis was cleared to a maximum degree by local treatment, the provision of approximately 75 mg. of ascorbic acid daily had a delaying effect on the recurrence of signs of inflammation over that which occurred when 10 mg. ascorbic acid daily was provided.

In co-operation with the Indian Health Services of the Department of National Health and Welfare a survey has been made of the dietary habits and nutritional status of more than 400 Canadian bush Indians. It was found that the dietary intake failed to meet the recommended daily allowances for most nutrients. Multiple and marked tissue changes, such as have been attributed by some authorities to vitamin deficiencies, were encountered in practically every Indian examined.

The co-operative survey of the vitamin A and carotene content of butter produced throughout Ontario has been completed. Butter manufactured in late October and early November was found to have the highest vitamin A and carotene content, the lowest range of the year being April butter.

Investigation of the digestive processes in ill and convalescent infants is being carried out. Measurements are being performed of digestive enzymes and of the ability to absorb fat and both simple and complex carbohydrates. It is hoped that information may be obtained which will be of assistance in maintaining optimum nutrition in infants suffering from acute or chronic illnesses.

A study of the relative absorption and utilization by the rat of vitamin A, pure carotene dissolved in oil, and the carotene of vegetables is in progress. Vitamin A storage in the liver after a standard feeding period is being used as the index.

Phloridzin and iodoacetate have been reported to decrease the rate of absorption of fat from the small intestine of the rat. A study of the effect of these drugs on the absorption of vitamin A, a fat-soluble vitamin, has shown the reverse effect. The rate of absorption is actually increased several fold. Further investigation of the phenomena is being made.

Through experimental modification it has been found possible to replace various macro blood chemical methods by micro determinations. The advantages in infancy and childhood of being able to obtain blood for these estimations by finger prick rather than by venipuncture are obvious.

Genetic studies on the Rh factor are being carried out. Different methods of treatment of icterus gravis with regard to the Rh factor in the transfused blood are being assessed and a bank is being built up of various types of anti-Rh serums.

Investigations on the diagnosis and treatment of whooping cough have been continued in order to confirm our findings of last year. It has been found that nasal mucus and cough plate cultures in the diagnosis are superior to either one alone. Concentrated human hyperimmune whooping cough serum has been found to be beneficial in treatment and in very young infants the use of it has been life-saving.

Through the use of pollen extracts in polyvinyl alcohol, it has been possible to build up in children by fewer injections a greater degree of immunity against hay fever than has been produced through the use of extracts in saline solution.

The value of high intakes of ascorbic acid in the treatment of allergic conditions is being investigated through the use of sensitized guinea pigs.

Methods of producing a coeliac-like syndrome have been worked out in experimental animals and a method of prevention and cure has been found. Work in co-operation with the Faculty of Dentistry in follow-up treated cases of coeliac

disease is being continued. Also work in co-operation with the Department of Biology on inherited factors in coeliac disease is being continued.

In co-operation with the Faculty of Dentistry a study is in progress on the effects of bonemeal on the incidence of dental caries.

In co-operation with the Department of Psychology and the Department of Educational Research, Ontario College of Education, a study is being made of the effect on learning ability produced by the daily administration of thiamine. The subjects under observation consist of forty-five pairs of identical twins attending Toronto public schools.

PUBLICATIONS

EBBS, J. H. "Dental health in children" (*Journal of the Canadian Dental Association*, vol. 12, March, 1946, pp. 114-17).

JACKSON, S. H., CROOK A., JOHNSTONE, W. M., IRVINE, O. R., BRYANT, L. R. SPROULE, W. H. "The retention of nutrients in cheese making. I. The retention of calcium, phosphorus and riboflavin in cheddar cheese made from raw milk" (*Scientific Agriculture*, vol. 25, Aug., 1945, pp. 817-53).

————— POCOCK, R., WILMS, M., DRAKE, T. G. H. "The thiamine, riboflavin and niacin content of canned meat products" (*Journal of the Canadian Dietetic Association*, Sept.-Dec., 1945).

SNELLING, C. E. "Jaundice in infancy" (*Canadian Medical Association Journal*, vol. 54, Feb., 1946, pp. 147-51).

TISDALL, F. F., LINGHORNE, W. J., MCINTOSH, W. G., TICE, J. W., MCCREARY, J. F., DRAKE, T. G. H., GREAVES, A. V., JOHNSTONE, W. M. "The relation of ascorbic acid intake to gingivitis" (*Canadian Medical Association Journal*, vol. 54, Feb., 1946, pp. 106-18).

————— MOORE, P. E., KRUSE, H. D., and CORRIGAN, R. S. C. "Medical survey of nutrition among the northern Manitoba Indians" (*Canadian Medical Association Journal*, vol. 54, March, 1946, pp. 223-33).

PATHOLOGICAL CHEMISTRY

Under the direction of Professor A. Hunter

The staff in Pathological Chemistry has been strengthened this year by the return to academic duty of Dr. A. G. Gornall. Dr. Gornall enlisted in the Royal Canadian Navy medical service in 1942 and until April 1 of this year has been stationed at the Naval Medical Laboratories in Halifax. He acted there as Biochemist, and, rising through the ranks of Sub-Lieutenant, Lieutenant, and Acting Lieutenant Commander, gained a wide and varied experience in the clinical applications of pathological chemistry. This experience will be of the greatest possible value to the Department, and amply justifies his promotion to the grade of Lecturer.

Against the gain of Dr. Gornall's return there has to be set, in the resignation of Dr. D. H. Boddington, a regrettable loss. Dr. Boddington, in respect to years of service, is the senior member of the staff in Pathological Chemistry. He was appointed as Demonstrator thirty-seven years ago upon the institution of the Department under Professor J. B. Leathes in 1909. He took part for several years in the conduct of the laboratory courses in the old Pathology Building, and from the first has had sole charge of the clinical laboratory work of medical students at St. Michael's Hospital. By his long service, and still more by the faithful and diligent discharge of his somewhat special responsibilities, he has deserved well of the Department, of the medical Faculty, and of the University.

The departmental courses have been conducted this year in accordance with the revised time-table adopted for the second and third medical years of the new curriculum. The necessary adjustments have created no difficulty, and indeed have resulted in a more advantageous use of both the available space and the available time. No change in the content of the courses has been found either necessary or desirable.

The number of students enrolled in the Department was 255, of whom 123 were second-year and 129 third-year medical students. Three graduate students were registered, of whom two were Ph.D. candidates (one majoring in Pathological Chemistry). One Ph.D. candidate graduated in June.

The Department has continued to perform basal metabolic rate determinations for certain services of the Toronto General Hospital. The total number of such determinations was 189. The number of patients involved was 132, of whom 103 were surgical and 29 obstetrical or gynaecological.

PUBLICATIONS

HAWKINS, R. D. "Liver function tests" (*University of Toronto Medical Journal*, vol. 23, 1946, pp. 160-8, 199-207).

ZIEGLER, J. A. "The effect of riboflavin deficiency on renal damage due to sulphanilyguanidine in the albino rat" (*Canadian Journal of Research*, vol. E24, 1946, pp. 23-30).

——— "Use of the benzidine staining method for the study of capillaries in the cornea" (*Canadian Journal of Research*, vol. E23, 1945, pp. 115-18).

——— with LARDY, H. A., in co-operation with the Department of Chemistry. "The enzymatic synthesis of phosphopyruvate" (*Journal of Biological Chemistry*, vol. 159, 1945, pp. 343-51).

PATHOLOGY AND BACTERIOLOGY

Under the direction of Professor William Boyd

Certain alterations have been made in the teaching arrangements during the past year. The Head of the Department has been impressed for some time with the importance of undergraduate students spending the longest time possible on their clinical studies. For that reason it was decided to reduce the time devoted to Special Pathology by eighty hours. A lecture on Special Pathology used to be given in the morning three times a week. This lecture has now been moved to the afternoon, which used to be devoted entirely to laboratory work. It is interesting to note that the standard of the work, judging by the term examination results, has not suffered in the least. This may be attributed to the fact that new methods of teaching have been introduced which need not be elaborated here. Suffice it to say that the work of the class is carried on more intensively and with greater keenness than was formerly the case. An effort has also been made to eliminate undue technical detail, which may be studied more profitably in the postgraduate courses which are coming into vogue in connection with the various specialties, and to concentrate on method and general principles. The time thus made available in the mornings can now be utilized for clinical study.

In addition to the usual teaching fellows and interns the following have worked in the Department in a voluntary capacity: Dr. R. L. MacMillan, Dr. E. J. Trow, Dr. C. B. Shier, Dr. R. T. G. Millar, Dr. W. A. Rowland, and Dr. R. W. Male. The following visitors have studied in the Department for a period of some months: Dr. Irene Koencke-Hertzler of Halstead, Kansas, and Dr. Irene Y. Li of the National Kweiyang Medical College, China.

In the division of Bacteriology studies on antibiotic substances have continued under Dr. P. H. Greey, aided by grants from the National Research Council. The sensitivity to penicillin has been determined on a series of strains of gonococci isolated prior to general distribution of the drug. Now that penicillin is widely used in the treatment of gonorrhoea another series of strains is being tested for sensitivity in order to detect the development of acquired drug resistance should this occur with penicillin. So far acquired drug resistance has not been encountered, but it is too early yet to draw any final conclusions. Dr. P. H. Greey and Dr. C. A. Aberhart in collaboration with the Department of Urology, Christie Street Military Hospital, were among the first to study the effect of streptomycin (kindly supplied by Merck and Company) in the treatment of urinary tract infections in paraplegic

patients. They found this new antibiotic substance to be a valuable agent for controlling such infections, but as bacteria rapidly acquire resistance to streptomycin it is important that the dosage used in therapy be large enough to prevent such a change occurring. It is hoped that this study will be resumed when streptomycin is manufactured in Canada. Dr. R. M. Price has continued her studies on bovine tuberculosis in children. Selected cases of surgical tuberculosis and tuberculous meningitis were investigated bacteriologically. As in the previous year no new cases of bovine infection have been encountered. Dr. Price is also continuing her interest in the prophylactic vaccination against tuberculosis with BCG.

In the division of Neuropathology the postgraduate instruction given to graduates taking the diploma in Psychiatric Medicine has been continued. It is satisfactory to note the increasing interest of graduates in the weekly conferences held in the rooms of the division. Dr. Linell has given up to Dr. W. S. Keith and Dr. E. H. Botterell the weekly museum demonstrations in Surgical Neuropathology which he took over as a war emergency. Drs. J. C. Richardson and H. H. Hyland have given, for the first time this year, similar museum demonstrations in Medical Neuropathology. Dr. J. W. Magladery has worked in the division since January 1, 1946, preparatory to his taking a position as Assistant Professor in Neurological Medicine at the Johns Hopkins Hospital Medical School.

Dr. Linell has continued his work with Drs. J. E. Bateman and K. G. McKenzie on plasma suture of peripheral nerves. He gave a report to the National Research Council's Committee on Traumatic Nerve Injuries at Ottawa in January, 1946. The division has co-operated with Dr. R. F. Warren in an investigation of the value of cartilage in the repair of defects in the skull. Dr. Mary I. Tom has continued her very valuable work of adding fully reported cases to the files of the division.

In the Autopsy division studies have been carried on by Dr. J. G. Watt on allergic inflammation of the arteries, with special reference to disseminated lupus erythematosus, by Dr. P. M. Spence on the lesions resulting from atrophy of the pancreas, and by Dr. G. R. Walker on healed dissecting aneurysm of the aorta.

The Head of the Department has prepared a new edition of his *Surgical Pathology*. A translation of the present edition has been published in Portuguese. So also has his *Textbook of Pathology*.

Professor W. L. Holman has retired from the position of Professor of Pathology after occupying that post for twenty-two years. In addition to his work on the classification of streptococci, Professor Holman has become an outstanding authority on the history of bacteriology. It is hoped that he may embody his extensive knowledge of this subject in book form now that he has sufficient leisure for the task.

Dr. Philip H. Greey has been appointed to fill the vacancy created by the retirement of Professor Holman. There could have been no better choice. Dr. Greey has been connected in the most active way with the Department for a number of years, he is an excellent teacher, and he has already made noteworthy contributions to the knowledge of his subject.

PUBLICATIONS

BOYD, W. "The education of a doctor." President's inaugural address (*Bulletin of the Academy of Medicine*, vol. 19, 1945, pp. 27-35).

——— "Inflammation" (*A textbook of surgery*, fourth edition, Philadelphia, 1945, pp. 1-4).

GREAVES, A. V. "The clinical pathology of some common tropical diseases" (*Bulletin of the Academy of Medicine*, vol. 18, 1945, pp. 201-7).

——— "Modern conceptions of the pathogenesis and morbid anatomy of malaria" (*Canadian Medical Association Journal*, vol. 54, 1946, pp. 568-73).

GREEY, P. with FARQUHARSON, R. F. and TOWNSEND, S. R. "Results of penicillin therapy" (*Canadian Medical Association Journal*, vol. 53, 1945, pp. 1-9).

HARTROFT, W. S. "The microscopic diagnosis of pulmonary emphysema" (*American Journal of Pathology*, vol. 21, 1945, pp. 889-903).

- MCNEELY, R. G. D. "Adenolymphoma of the salivary glands" (*Canadian Medical Association Journal*, vol. 54, 1946, 124-9).
- PAYNE, J. F. and BOYD, W. "Lucite in museum work" (*Journal of Technical Methods and Bulletin of the International Association of Medical Museums*, vol. 25, 1945, pp. 79-80).
- POSTOLOFF, A. V. "Intestinal obstruction due to persistence of the omphalomesenteric artery" (*Annals of Surgery*, vol. 123, 1946, pp. 315-20).
- TOM, M. I. "Metastatic tumours of brain" (*Canadian Medical Association Journal*, vol. 54, 1946, pp. 265-8).

PHARMACY AND PHARMACOLOGY

Under the direction of Professor J. K. W. Ferguson

The sudden death of Professor V. E. Henderson on August 6, 1945, after thirty-six years as Head of this Department, caused deep sorrow and regret to all members of his staff. Professor Henderson's record of personal accomplishment and of devoted service to the University has set a standard worthy of emulation by his successors.

For nearly two years before his death, Professor Henderson had been occupied with the preparation on behalf of the Canadian Medical Association of the *Physicians' Formulary*. Professor Ferguson fell heir to this task which, with the invaluable help of Professor G. H. W. Lucas and Miss D. Caldecott, was brought to completion by the publication of the booklet in May, 1946.

With the introduction of the new four-year medical course, the students will receive 144 hours of instruction in Pharmacology, an increase of about 20 per cent, which is well justified by the growing magnitude and importance of the subject. Because some of the classes will be in smaller sections, the time spent by the staff in teaching the medical students will be increased by about 50 per cent, which we hope will improve the efficiency of instruction.

This year for the first time a full course in Pharmacology was given to a group of 5 non-medical graduate students; it consisted of ninety hours of conferences and laboratory work. In view of the increasing professional opportunities in Pharmacology which will be seized mostly by chemists and biologists, it is expected that this course will assume increasing importance.

Short lecture courses were given to a small group of graduate dentists and to a group of medical graduates specializing in anaesthesia.

Dr. Ferguson represented the R.C.A.F. at a meeting of the Aero Medical Association in Chicago in April and presented a paper on oxygen equipment which will appear in the *Journal of Aviation Medicine*.

RESEARCH

Directed by Professor J. K. W. Ferguson

Much prominence has been given recently to chemical compounds which alleviate hyperthyroidism by suppressing certain functions of the thyroid gland. It seemed timely to investigate compounds which might suppress hyperthyroidism at an earlier stage in the causal sequence and assistance to pursue this was granted by the Banting Research Foundation. From February to June, 1946, Dr. C. W. J. Armstrong worked on the development of methods of investigation and has made satisfactory progress.

Mr. W. Paul has been engaged in two projects concerned with respiration, also assisted by the Banting Research Foundation. One was the development of an instantaneous nitrogen meter, which will be applied to the measurement of lung volumes and the assessment of pulmonary function. The other was the effect of breathing oxygen by normal adults, on the oxygen saturation of arterial blood as measured by the Millikan photoelectric oximeter. The R.C.A.F. Institute of

Aviation Medicine has kindly co-operated by supplying normal subjects. With normal responses established, it is proposed to investigate the responses in pathological states, such as congenital heart disease.

In connection with the foregoing studies, it became desirable to develop a micro-method of measuring the oxygen content of blood. A new principle of titration has been devised and if successful, the new method will have many applications. The services of Dr. D. D. Bonnycastle have been obtained for a few months to pursue this work.

Directed by Dr. G. H. W. Lucas

The measurement of the water content of nitrous oxide which is sold for anæsthetic purposes is required by the British Pharmacopœia. The method described has given inconsistent results in this laboratory, and in consequence a grant was provided by the Associate Committee on Dental Research of the National Research Council to investigate the method. Dr. R. J. S. Tickle, D.D.S., has succeeded in resolving some of the sources of error and establishing a satisfactory method. He is now proceeding to measure the composition of the gas delivered by various types of anæsthetic machines in use, with the purpose of assessing their safety.

The measurement of alcohol in blood is a subject of recurrent interest. The methods of estimation in current use are not beyond criticism. Mr. H. W. Smith is investigating various methods and has succeeded in greatly increasing the precision of analysis.

Hypnotic drugs of the barbiturate group are a frequent cause of poisoning, accidental and criminal. Dr. Lucas has made substantial progress with methods to separate and to identify these compounds for medico-legal purposes. He is also continuing his search for a way to identify minute amounts of strychnine in animal tissues.

PUBLICATIONS

HENDERSON, V. E., FERGUSON, J. K. W., and LUCAS, G. H. W. (members of Committee on Pharmacy, Canadian Medical Association). *The physicians' formulary*. Toronto: University of Toronto Press. 1946.

PHYSIOLOGY

Under the direction of Professor C. H. Best

The teaching activities of the Department have been reviewed, revised, and expanded during the past year. This has been facilitated by the return of Drs. Jacob Markowitz and E. T. Waters from active service and by the gradual cessation, throughout the year, of service research which had previously occupied a large part of the time of a number of other members of the staff. Dr. N. B. Taylor and the Head of the Department have continued the periodic revision of the various texts which constitute an integral part of the teaching activities in Physiology. Dr. R. E. Haist has been able to carry forward his plans for the revision of the laboratory exercises in Physiology. The course in Advanced Physiology has benefited by the return of Dr. Markowitz who has resumed instruction in Experimental Surgery as a branch of Physiology. Dr. D. Y. Solandt has amplified the Biophysics portion of the advanced course and a plan has been drawn up for comprehensive advanced instruction in this branch of Physiology.

During the past year the research activities of the Department have been devoted in part to terminating the various projects undertaken in connection with the war effort and in part to re-establishing the more fundamental studies appropriate to relatively peaceful times. Dr. E. Fidler, in collaboration with Dr. Waters, has undertaken a study of the blood platelet changes in anaphylactic and peptone shock in dogs. Working with Drs. L. B. Jaques and E. T. Feldsted and

Miss A. G. Macdonald, Dr. Fidler has also investigated the use of silicone for the prevention of the clotting of blood.

Mr. E. S. Goranson has continued his study of the various aspects of carbohydrate metabolism which are specifically influenced by insulin, particularly as these relate to skeletal muscle. Dr. Haist and his group have continued their study of the various aspects of traumatic shock. In this connection Dr. M. A. Ashworth has investigated the changes in blood flow to the liver and pancreas in shocked and normal animals and for this purpose has designed a simple flow-meter. Mrs. E. J. M. Pugh has investigated the effect of orally administered fructose on shocked animals. These and other studies on traumatic shock are being continued and the chemical aspects of the condition are being investigated in collaboration with Mr. Goranson.

Research on heparin and blood clotting has been continued by Dr. Jaques and his associates. In this work they have been greatly assisted by the concurrent studies on platelets carried out by Dr. Fidler. Miss H. J. Bell has successfully prepared an acetyl derivative of heparin. Mr. E. Napke has obtained data on the urinary excretion of heparin and its inactivated form, "uroheparin." Protamine has been used as an antidote for heparin and its toxicity investigated. The John and Mary R. Markle Foundation has granted support for this work for a further period of two years.

Studies on the function of the hepatic artery have been undertaken by Drs. Waters and Markowitz. As an aid to this study a two-stage operation for the purpose of producing a reverse Eck fistula has been perfected. Dr. Waters has resumed his studies on methods of insulin assay. In this connection fructose metabolism has been studied and, with the collaboration of Mr. Goranson, certain aspects of carbohydrate metabolism in skeletal muscle have been investigated.

The section of Biophysics, under Dr. Solandt, has been concerned particularly with applied biophysics during the war and much of this work has been carried through into the present year. Dr. Ruth C. Partridge, Dr. Jean Fletcher, and Mr. John Goodwin have collaborated in the continuation of the investigation of the various factors involved in the fatigue of operators of anti-submarine detection devices and a final report on auditory fatigue has been prepared. Mr. M. L. Bunker has co-operated with both Army and Navy in testing special goggles designed by the staff in Biophysics to facilitate the observation of tracer bullets under bright sky conditions and this equipment has been adopted by the Royal Canadian Navy and the Canadian Army. Surgeon Lieutenant Commander Carlton Smith has given guidance to the statistical evaluation of the results of various tests of the auditory and visual functions which were developed in the section of Biophysics for use by the Royal Canadian Navy during the war. Surgeon Lieutenant Commander J. W. Scott, after returning to Toronto from a period abroad with the Royal Navy Personnel Research Committee, has resumed investigation of the physiological properties of peripheral vision. Dr. D. B. Moran has undertaken a research designed to elucidate the genesis of the electrocardiogram in experimental animals, a study which was interrupted by the war. The construction of a cathode-ray tube electromyograph has been undertaken to facilitate the study of function in denervated muscle. The existing body of data on anomalies in colour vision is being augmented by testing a part of the student group with the "Dichroic Anomaloscope." Mr. G. K. Roseblade, who succeeded Mr. J. D. Brown as Senior Technician in the section of Biophysics, was responsible for the practical development of both the myograph and the anomaloscope and has also collaborated with the Hospital for Sick Children and the Faculty of Dentistry in the construction of special electronic research equipment.

PUBLICATIONS

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- FIDLAR, E. and WATERS, E. T. "The behavior of platelets in anaphylactic and peptone shock" (*Journal of Immunology*, vol. 52, 1946, pp. 315-24).
- HAIST, R. E. "Factors affecting the insulin content of the pancreas" (*Physiological Review*, vol. 24, 1944, pp. 409-44).
- HAMILTON, J. I. and HAIST, R. E. "Studies on experimental shock in dogs" (*Canadian Journal of Research*, vol. E23, 1945, pp. 89-103).
- HOAR, W. S. and HAIST, R. E. "A comparison of the efficiency of different infusion media in shock" (*Canadian Journal of Research*, vol. E24, 1946, pp. 31-5).
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- and JAQUES, L. B. "The effect of dicumarol upon plasma fibrinogen" (*American Journal of Physiology*, vol. 143, 1945, pp. 101-4).
- JAQUES, L. B. and BELL, H. J. "The reduction of hydrogen peroxide by fibrin" (*Canadian Journal of Research*, vol. E24, 1946, pp. 79-83).
- and DUNLOP, A. P. "The effect of calcium concentration on prothrombin time" (*American Journal of Physiology*, vol. 145, 1945, pp. 67-70).
- "The effect of calcium concentration on the prothrombin time of dogs treated with dicumarol" (*American Journal of Physiology*, vol. 143, 1945, pp. 355-60).
- "The effect of phthalic acid on the prothrombin time of dicumarol-treated dogs" (*Canadian Journal of Research*, vol. E23, 1945, pp. 167-74).
- PARTRIDGE, R. C. "Pitch discrimination" (*University of Toronto Monthly*, vol. 22, 1945, pp. 198-206).
- RASKA, S. B. "The metabolism of the kidney in experimental renal hypertension" (*Science*, vol. 100, 1944, pp. 574-5).
- "The metabolism of the kidney in experimental renal hypertension. II" (*Journal of Experimental Medicine*, vol. 82, 1945, pp. 227-40).
- SOLANDT, D. Y. "Muscle" (*Annual Review of Physiology*, vol. 7, 1945, pp. 275-304).

PSYCHIATRY

Under the direction of Professor C. B. Farrar

Required work. In the newly organized four-year course in medicine, the present teaching plan in the Department of Psychiatry includes three introductory lectures in January to the first-year class. These lectures are designed to make the students conscious from the beginning of their course of both psychological and physiological factors in the functioning of the organism in both health and illness.

The work in the second year has been somewhat modified and extended with a view to direct continuation in the third year, the two years thus presenting a systematic and comprehensive survey of the entire field. The plans include individual work with patients by small groups of students in the final year in natural sequence to the introductory courses preceding.

Diploma course. The following four graduate students are enrolled for the diploma course in Psychiatry during the year 1945-6: Dr. A. Church, Dr. J. M. Kenyon, Dr. G. H. Stratton, Dr. W. Weber. The number of graduates in Medicine who have previously completed successfully the diploma course since it was established in 1936 is 45.

Military courses. During the year the short courses for medical officers from the armed forces were completed. The total number of officers who have taken these courses of instruction during the war years is 48.

Psychiatric nursing. During the year with the expansion of facilities in the Out-Patient Department of the Toronto Psychiatric Hospital, it has been possible to give more attention to the training of both affiliate undergraduate and graduate nurses in psychiatric nursing and case work in collaboration with the School of

Nursing and various affiliating hospitals; also to the training of public health nurses for community work in mental hygiene in collaboration with the Department of Health.

Staff changes. I regret to report the loss of several members of staff who had been absent on leave in military service and who have taken other positions or removed from the city. These are: Dr. K. G. Gray; Dr. J. D. M. Griffin; Dr. B. H. McNeel and Dr. C. G. Stogdill.

Dr. J. E. Sharpe, now Assistant Deputy Minister of Health, and Dr. J. G. Dewan, who have also been in military service, are again available to assist with the work of the Department.

Dr. D. G. McKerracher on discharge from military service has been added to the staff as Fellow in Social Psychiatry.

During the past academic year, due to lack of medical and nursing staff, work in the Research Unit, Toronto Psychiatric Hospital, was restricted to one problem.

The problem concerned the variations in electroencephalograms in patients showing episodal variations in state of consciousness. The series consisted of patients seen in the Toronto Psychiatric Hospital wards and Out-Patient Department, the Toronto Western Hospital Neurology Out-Patient Department and patients referred by private neuro-psychiatrists.

The common clinical abnormality was a suggestion of a psychoneurosis of the neurasthenic type, and a preliminary survey of our findings in more than twenty cases suggests that certain types of so-called psychoneurotics, showing episodal changes in state of consciousness or cranialgia, and certain specific variations in the alpha rhythm in the electroencephalogram, respond favourably to sodium dilantin and do not improve clinically when barbiturates alone are administered. This investigation is proceeding to the point where the series will allow statistical treatment.

The electroencephalographic investigations have been under the direction of Mr. J. E. Goodwin, B.A.Sc., and the project has been jointly directed by the Department of Physiology (Professor C. H. Best) and the Department of Psychiatry.

PUBLICATIONS

FARRAR, C. B. "Psychiatry" (*New international year book*, New York, Funk & Wagnalls, 1946, pp. 479-83).

MCNEEL, B. H. "War psychiatry in retrospect" (*American Journal of Psychiatry*, vol. 102, Jan., 1946, pp. 500-6).

and DANCEY, T. E. "The personality of the successful soldier" (*American Journal of Psychiatry*, vol. 102, Nov., 1945, pp. 337-42).

RADIOLOGY

Under the direction of Professor G. E. Richards

No changes in the work of the Department have occurred during the year. It is a matter of great regret that this Department, which contains a great store of useful material for teaching purposes, is made so little use of in the teaching programme, a condition which compares very unfavourably with the practice in other schools of like standing.

Additions to the staff have included Dr. D. C. Eaglesham and Dr. W. E. Crysler, who have joined the staff on being discharged from military service.

SURGERY

Under the direction of Professor W. E. Gallie

The session of 1945-6 has been marked by the return to duty of all the officers referred to in the last annual report. Of these, Dr. W. G. Bigelow, Dr. F. P. Dewar, and Dr. E. B. Tovee have been sent to centres in the United States for special training preparatory to service here. Doctor Bigelow is working in the laboratories of Professor Alfred Blalock at Johns Hopkins University on the surgery of the heart and blood-vessels. Doctor Dewar has a fellowship at the Hospital for Ruptured and Crippled in New York, where he is studying orthopaedic surgery, preparatory to joining the Orthopaedic Service at the Toronto General Hospital. He is making a special study of scoliosis. Doctor Tovee has a fellowship with Professor L. R. Dragstedt at the University of Chicago, where he is studying the physiology of the stomach and the influence of vagotomy on peptic ulceration. These three young surgeons will join our teaching staff in 1947.

With the demobilization of medical officers who entered the medical services with postgraduate training limited to a rotating internship, the Department has been overwhelmed by applications for postgraduate training in Surgery. To meet this demand the number of senior interns in training in the course for the M.S. degree at the Toronto General, St. Michael's, the Toronto Western and the Hospital for Sick Children has been doubled. As all these interns are preparing for the examinations for fellowship in one of the Royal Colleges, special courses in Anatomy, Physiology, and Surgery have been provided for them. Throughout the year Professor Grant conducted classes of instruction in Anatomy on two nights a week. This enabled every senior surgical intern to attend one class in Anatomy a week and when spread over two years it will result in a complete review of Anatomy for these students. Similarly, Professor Best has arranged to provide a course on Applied Physiology and the Department of Surgery has undertaken evening courses on special surgical problems. In this way interns who do not have the opportunity to gain practical experience in certain of the more special forms of surgery, such as thoracic, urological, and neurological surgery, now receive special instruction in these branches and are thus more broadly educated. These classes are conducted by members of the staff in the evenings and are attended by all the senior interns in the city.

This is the first occasion in this school on which systematic instruction in Anatomy, Physiology, and Surgery for interns who are enrolled in the postgraduate course in Surgery has been attempted and the plan has been received by them enthusiastically. It is hoped that it will not only prepare the candidates for the higher examinations but by inculcating in them habits of study, make them better surgeons.

With a view to increasing the opportunities for postgraduate training in Surgery for the large number of our graduates who desire it, the Head of the Department has arranged with the Hamilton General Hospital a reorganization of their surgical intern staff whereby students who have completed a rotating intern year will be enrolled as senior interns in surgery for three years, with a residency afterwards for a limited number. To help in this programme, two of these interns will be given the opportunity to attend our evening classes in Anatomy, Physiology, and Surgery. In all probability these interns will spend a limited period in one of our Toronto hospitals. They will be registered for the degree of Master of Surgery.

In order that the foundation for surgical practice may be broadened, it has been arranged that from time to time students who have been selected for surgical training will spend a year in the laboratory of one of the fundamental medical sciences. This has already been in practice in respect to Anatomy and Pathology but it will now be extended to include Pharmacology, Physiology, and Pathological Chemistry. These basic medical sciences are becoming of ever increasing impor-

tance to surgery and it is hoped that an introduction to the experimental method may later have a beneficial effect on the attitude of the clinical surgeon to scientific investigation.

In accordance with the agreement with the other Canadian medical schools a refresher course for returned officers was given in conjunction with the other clinical departments from January 14, 1946, to the following March 9. Throughout the year an increasing number of doctors from various points in Canada have been attending ward rounds and operating clinics. This indicates a rising interest in the examinations for qualification as fellows of the Royal College or for certification as specialists.

The close of the year 1945-6 brought the retirement of Professor T. A. J. Duff as Surgeon-in-Chief at the Toronto Western Hospital and as Assistant Professor of Surgery in the University. Doctor Duff has been Head of the Department at the Western Hospital since the reorganization which took place in 1936. Besides being an excellent teacher he has been a good organizer and administrator and has built up a very efficient staff. He is being succeeded by Dr. R. C. Laird, who has been appointed Surgeon-in-Chief by the Hospital and Assistant Professor of Surgery in the University. Professor Laird is a thoroughly trained young surgeon, a Master of Surgery from this University, a Fellow of the Royal Colleges of Surgeons of England and Canada and a veteran of this war, where he served with distinction with the rank of Wing Commander as Consultant in Surgery to the Air Force. He has been a member of Dr. Duff's staff since 1936 and may be expected to carry on the traditions already established by Dr. Duff and give the leadership which a good surgical service requires.

At the General Hospital serious depletion of the staff has occurred because of the retirement of six of its members. These are Dr. Norman S. Shenstone, Dr. Robin Pearse, Dr. Charles B. Parker, Dr. Roy H. Thomas, Dr. Robert A. McComb, and Dr. J. A. MacFarlane.

Dr. Shenstone has been a member of the Department of Surgery and of the staff of the General Hospital since 1909. He founded the sub-department of Thoracic Surgery and brought it to the very high position it occupies among the clinics of the world. He has stimulated much study and has attracted students from all lands. The group of young surgeons doing first-class general and thoracic surgery across Canada are a lasting memorial of the service he has given to this University and to his country.

Dr. Pearse has been a member of the sub-department of Urology at the General Hospital since 1919 and the head of it since 1933. During his time the service has developed from a small group of patients in a general surgical ward to a large service of fifty beds with a large daily out-patient service. His retirement is regretted by all.

Dr. Parker has retired in order that he may devote himself to the duties of Assistant Superintendent of the General Hospital and to the service, as Chief Medical Officer, of one of the large fraternal societies. His intimate knowledge of the Hospital, acquired through long years of service on the clinical side, will be of great value to the administration.

Dr. Thomas is a figure almost inseparable from the Emergency Hospital. Whole generations of our graduates have received their instruction in minor surgery, fractures, and emergencies of all kinds from him. He carries with him into his retirement the goodwill and the friendship of the whole staff.

Dr. McComb, of the sub-department of Urology, reached the retiring age during the war but kindly consented to continue his service to the University and the Hospital until the return of officers from overseas. He now leaves the Department with the respect and gratitude of all.

Dr. MacFarlane retires from the Department of Surgery in order to accept appointment as Dean of the Faculty. While appreciating that his transfer to the administration will be of advantage to the whole Faculty, nevertheless, the Depart-

ment of Surgery regrets exceedingly the loss of its intimate relationship with him and of his valuable assistance in the Department and in the Hospital.

In addition to these members of the General Hospital Staff, Dr. E. E. Shouldice who for many years has been a voluntary assistant in the Out-Patient Department and a Demonstrator of Surgery in the University, requested that his resignation be accepted in order that he might devote more time to private work. Dr. Shouldice has been a faithful assistant in the Department and during the war years, particularly, gave invaluable service to the school.

In the King's Birthday Honours appeared the name of Dr. W. K. Welsh, formerly Surgeon Commander, R.C.N., who was awarded the O.B.E. for distinguished service to the Navy.

In the New Year's Honours list, Dr. A. W. Farmer, formerly Wing Commander Farmer, Chief Consultant in Surgery, R.C.A.F., received the M.B.E.

Dr. R. I. Harris has been made President-Elect of the American Orthopædic Association, the highest honour in the gift of the orthopædic surgeons of America.

RESEARCH

Researches have been much curtailed owing to the depletion of the staff and the absence of the younger members in foreign laboratories. They are as follows:

BIGELOW, W. G. Studies on the surgical physiology of the heart and blood-vessels; with Professor Blalock and Dr. Shumaker at Johns Hopkins University.

BOTTERELL, E. H. (Neuro-surgeon) in association with ABERHART, C. (Urologist), JOUSSE, A. T. (Physician), and GORDON, S. (Plastic Surgeon) have tackled the problem of the treatment and rehabilitation of the paraplegic soldiers (mostly gunshot wounds of the spinal cord). This combination has resulted in such dramatic results that the programme has been extended to Workmen's Compensation cases and to civilian patients. Their contribution is of the highest practical importance.

DEWAR, F. P. Studies on the causation and treatment of scoliosis; with Dr. P. Wilson, New York.

GORDON, S. D. Studies on the fate of transplanted cancellous bone. Studies on the fate of adult cartilage and embryonic cartilage when used to fill adult bone defects.

HARRIS, R. I. Dr. Harris completed his studies on the abnormalities of the feet in Canadian soldiers and presented a paper before the American Orthopædic Association. This is probably the most complete and exhaustive study of feet that has ever been made and should form the basis of sound knowledge on the subject.

McKENZIE, K. G. In conjunction with BOTTERELL, E. H. and MACDONALD, I. B. made studies of the anatomy of the lower end of the spinal cord in preparation for undertaking the operation of Anterior Rhizotomy in the treatment of spastic paralysis resulting from transverse lesion of the spinal cord. With PROCTOR, L. D. continued the study of frontal lobe leucotomy in the treatment of mental disease. They reported the results of this operation on twenty-seven patients at the Canadian Medical Association meeting at Banff. A group of patients suffering from hypertension have been operated upon by the Smithwick method. A report will be presented after sufficient time has elapsed to justify a final conclusion.

TOVEE, E. B. Studies in gastric secretion of the influence of vagotomy on peptic ulceration; with Professor Dragstedt in the University of Chicago.

WILKINSON, F. R. Studies on the transplantation of bone and on arterial anastomosis.

PUBLICATIONS

COUCH, J. H. "How to write examinations and pass" (*University of Toronto Medical Journal*, vol. 23, no. 4, pp. 169-74).

_____ "Injured hands and physiotherapy" (*Journal of the Canadian Physiotherapy Association*, Dec., 1945, pp. 6-8).

_____ "Soliloquy" (*Ontario Medical Review*, April, 1946, pp. 27-30).

_____ "The surgeon looks at general practice" (*Nova Scotia Medical Bulletin*, Nov., 1945, pp. 289-92).

HARRIS, R. I. "Nephrolithiasis resulting from prolonged recumbency" (*Journal of the Canadian Medical Services*, May, 1945, pp. 420-31).

MACFARLANE, J. A. "The management and results of war wounds of the abdomen." Moynihan Lecture (*Leeds Medical Journal*, Sept., 1945).

_____ "Penicillin therapy in surgery" (*Bulletin of the Academy of Medicine*, vol. 19, Feb., 1946, pp. 93-101).

- MURRAY, D. W. G. "The healing of arteries and the relationship to secondary hæmorrhage" (*Surgery*, vol. 18, no. 5, 1945, pp. 624-7).
- "Resection of the rectum with reconstruction of canal through the perineal approach" (*Surgery, Gynecology and Obstetrics*, vol. 82, March, 1946, pp. 283-9).
- ROOME, N. W. "Treatment with vitamin B of a special type of vesical atony" (*Canadian Medical Association Journal*, vol. 54, 1946, pp. 151-3).
- THOMSON, S. "Discoid cartilage of the knee with a report of a bilateral case." (*Canadian Medical Association Journal*, vol. 54, 1946, pp. 596-8).

THERAPEUTICS

Under the direction of Professor R. F. Farquharson

Teaching has been carried on as in previous years. Drs. A. M. Johnson, F. W. B. Hurlburt, and R. M. Taylor were appointed as Assistants in Therapeutics. Dr. A. H. Squires was appointed as Research Fellow in Therapeutics, a position which he held before serving overseas.

The Department has been closely associated with the Department of Medicine in the investigation of problems in anæmia, endocrinology, and the clinical trials of special drugs.

Dr. Squires has resumed his work on the effect of long-continued ingestion of thyroid on the activity of the thyroid gland; and on the study of long-term treatment of parathyroid tetany with large doses of calciferol.

In the sub-department of Anæsthesia routine teaching and investigation of special methods of anæsthesia have been carried on as formerly. Dr. R. A. Gordon and Dr. George M. Boddington were appointed as voluntary assistants on their return from overseas.

The sub-department of Physical Therapy has been busy with teaching. Miss F. Cowie and Miss R. Harland were appointed as Assistants in Physical Therapy.

PUBLICATIONS

- BODDINGTON, G. M. "Sodium pentothal anæsthesia in dental extractions" (*Canadian Dental Journal*, July, 1945).
- GORDON, R. A. "Significance of blood changes in the treatment of the burned patient" (*Current Researches in Anesthesia and Analgesia*, vol. 24, 1945, pp. 78-84).
- and AINSLIE, E. H. "Experience with vinyl-plastic endotracheal tubes" (*Anesthesiology*, vol. 6, 1945, pp. 359-61).
- HARGRAVE, R. M. "Endotracheal anæsthesia in ear, nose and throat surgery" (*Bulletin of the Academy of Medicine*, April, 1946).
- HEARD, K. M. "The use of the newer anæsthetics in combined anæsthesia" (*Ontario Medical Review*, vol. 12, Aug., 1945, pp. 113-21).

THE BANTING AND BEST DEPARTMENT OF MEDICAL RESEARCH

Under the direction of Professor C. H. Best

Dr. C. C. Lucas, Dr. J. H. Ridout, and Dr. J. Patterson, with the help of other members of the Department, have completed a series of investigations into the relative lipotropic activity of choline and inositol, in rats upon diets containing cholesterol, with and without fat. The effect of choline was found to be always greater than that of inositol in reducing both glycerides and cholesteryl esters in liver lipids. The alleged preferential lipotropic effect of inositol upon cholesteryl esters was not observed in any of some thirty comparative studies. No waning of the lipotropic effect of choline was observed in tests run for sixteen weeks. Fatty livers produced by feeding a liver fraction, obtained from the Connaught Laboratories, were found to be partially resistant to the action of choline. Folic acid appears to account for part of the effect noted with the liver extract. This matter is still being investigated.

Drs. Ridout, Lucas, and Best have carried out a series of "titrations" of choline and inositol, to determine their relative lipotropic potencies at known daily intakes.

Dr. C. S. McArthur, and Dr. Lucas, assisted by Miss M. J. Murray, have completed one phase of a study with the tri-ethyl homologue of choline, a compound with no labile methyl groups but possessing lipotropic activity. They found that this compound, when fed to rats at a level of about 60 mg. per day, was incorporated into a liver phospholipid. This finding supports the hypotheses that choline produces its effect by reactions involving the intact molecule rather than just the labile methyl groups. It is of great interest, in view of the usually specific nature of biological syntheses to discover that the ethyl homologue of choline can be utilized by rats on a choline-free diet to form a homologue of lecithin which appears able to perform many of the metabolic functions of lecithin.

Dr. Lucas and L. B. MacPherson have begun a study of rat liver lipids, particularly the phospholipid portion. The "cephelin fraction" is receiving most attention. The presence of an inositol-containing phospholipid in liver has been established for the first time.

Miss J. M. Lang has continued to work on the application of micro-biological methods to the determination of choline and inositol in various materials (tissues, tissue extracts, phospholipids, whole rations, and dietary components). A study of the metabolic availability of synthetic compounds related to the natural substances is being continued. Miss Lang's work has been invaluable in furthering other investigations being conducted in the Department.

In the sub-department of Cellular Physiology, Dr. B. Mendel and Miss M. C. Bowman have been engaged in the development of a method for the estimation of the activity of the enzyme rhodanase in tissues and have been investigating the possibility of a relationship between the level of this enzyme in tissues and the magnitude of their aerobic glycolysis. Dr. Mendel and Mrs. O. M. Wright have been conducting studies on the properties of the cholinesterase in heart. During the past year Mrs. R. D. Hawkins and Mrs. J. M. Gunter have carried out investigations on the significance of pseudo-cholinesterase in the process of nerve impulse transmission. These workers have been able to demonstrate, by employing a prostigmine analogue (the dimethylcarbamate of 2-hydroxy-5-phenylbenzyl trimethylammonium bromide) which inhibits selectively the pseudo-cholinesterase of tissues and body fluids, that the activity of this enzyme can be depressed almost completely *in vivo* without producing symptoms indicative of the accumulation of acetylcholine. These results provide further evidence that the role of pseudo-cholinesterase in nerve impulse transmission is relatively unimportant.

Dr. Mendel has been actively engaged in several aspects of cancer research. In one of these problems which involved nutritional factors, Dr. Best and Dr. Mendel jointly directed the experimental work.

Dr. S. F. MacDonald has been developing methods for the preparation of some substituted phenylacetic acids; he was assisted for some months by A. J. Chechalk. This work, interrupted by that on penicillin, arose during the war when synthesis of certain alkaloids, of reputed value in preventing seasickness, and otherwise unavailable, was considered. A much improved method for making these acids, which would be necessary in the synthesis then projected, has been devised. Dr. MacDonald has also been engaged in the preparation of adrenochrome and some choline derivatives required for physiological work.

Dr. G. A. Wrenshall, a well-trained physicist who is now doing postgraduate work in Medical Research, has been engaged with Dr. Eston de Eston from Sao Paulo, Brazil, and Dr. J. Collins-Williams in further studies on alloxan diabetes. They have been investigating particularly the profound fall in blood sugar which is observed after alloxan administration. Other investigators have reported that this hypoglycæmia is due to liver damage. It is apparently also due in part to release of insulin from the pancreas since it is seen much more regularly in normal than in depancreatized dogs. This group is also studying methods for the detection of the small amounts of insulin which are present in blood. Some progress

has been made but further work is required before any clinical application of the findings can be expected.

Dr. J. Campbell and Dr. M. F. Clarkson are investigating the fat depots in order to ascertain from what sources the fatty material, which accumulates in the liver, comes. The increase in liver fat is produced by administration of a fraction from the anterior lobe of the pituitary gland. Dr. Campbell and his group are attempting to purify this principle and also are working on the diabetogenic factor of the pituitary.

Dr. E. A. Sellers has continued his work on burns and has obtained new findings on the sparing action of methionine on nitrogen loss. He has also carried out further studies on carbon tetrachloride cirrhosis of the liver and the relative values of the various therapeutic agents in preventing and curing this condition.

Dr. and Mrs. J. Talesnik from Santiago, Chile, have been guest workers in the Department during this year and have proved to be most valuable additions to our staff. Dr. Talesnik and other members of our group have demonstrated a delay in Wallerian degeneration of the cut sciatic nerve in animals deprived of choline. The exact mechanism of this phenomenon has not yet been elucidated but it may well prove to be associated with the interference with phospholipid metabolism which appears when the animals are deprived of choline.

Dr. W. R. Franks has returned, part-time, to the Department and has started several new researches on tumour growth and on the action of acetylcholine on blood vessels. He has been assisted by Miss M. Shaw.

During the past year J. E. Goodwin has completed his auditory researches for the Associate Committee of Aviation Medicine, National Research Council. Some of the findings concerning the ability of normal and hard-of-hearing individuals to hear pure tones and speech in the presence of a background noise have been reported.

In the field of electroencephalography progress has been made in the quantitative analysis of the brain activities of normal and clinically abnormal populations. In some conditions, as, for example, in cases of epilepsy, the deviations from normal have diagnostic value, whereas in the psychoses and psychoneuroses the variations are at present of statistical value only.

Dr. A. L. Chute has served as a valuable liaison officer between the Department and the Hospital for Sick Children. Interesting cases have been brought to the attention of research workers who in turn have suggested new ideas for consideration in the clinic.

The Head of the Department received the degree Docteur, *honoris causa*, University of Paris, and an Honorary Fellowship in the Paris Academy of Medicine. He was elected a Scientific Director of the International Health Division of the Rockefeller Foundation for a period of three years.

PUBLICATIONS

- BAER, E. and MCARTHUR, C. S. "Phosphorylcholine" (*Journal of Biological Chemistry*, vol. 154, 1944, pp. 451-60).
- BEST, C. H. "Insulin and diabetes, in retrospect and in prospect." The Banting Memorial Lecture (*Canadian Medical Association Journal*, vol. 53, 1945, pp. 204-12).
- "Pancreatic enzymes and liver fat" (*Science*, vol. 103, 1946, p. 207).
- LUCAS, C. C., PATTERSON, J. M., and RIDOUT, J. H. "Lipotropic properties of inositol" (*Science*, vol. 103, 1946, pp. 12-13).
- BEVERIDGE, J. M. R., LUCAS, C. C., and O'GRADY, M. "Effect of dietary proteins and amino acids on liver fat" (*Journal of Biological Chemistry*, vol. 160, 1945, pp. 505-18).
- GUNTER, J. M. "Absence of pseudo-cholinesterase from the tissues of ruminants" (*Nature*, vol. 157, 1946, p. 369).
- MENDEL, B. and RUDNEY, H. "Some effects of salts on true cholinesterase" (*Science*, vol. 102, 1945, pp. 616-17).
- MOUNFIELD, M. E. and GOODWIN, J. E. "Auditory thresholds of normal and hard-of-hearing subjects in noise" (*Canadian Medical Association Journal*, vol. 54, 1945, pp. 69-72).
- PROCTOR, L. D. and GOODWIN, J. E. "Clinical and electrophysiological observations following electroshock" (*American Journal of Psychiatry*, vol. 101, 1945, pp. 797-800).